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AN ANNOTATED CHECK LIST OF THE FLORA OF SWAZILAND

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AN ANNOTATED CHECK LIST OF THE FLORA OF SWAZILAND

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Mbabane, Swaziland.

1966

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I am deeply indebted to Mrs. E. Murdoch, Cartographer in the Swaziland Department of Agriculture, for preparing these Maps.

AN ANNOTATED CHECK LIST OF THE FLORA OF SWAZILAND

Part I

PREFACE

This Check List represents a first attempt to record the species of Spermaphyta (Flowering Plants) and Pteridophyta (Ferns and Fern-Allies) occurring in Swaziland. It is based on the collections made by the Botanical Survey and preserved in its Herbarium at Mbabane. A number of specimens collected by myself before the establishment of the Survey have also been taken into account: these specimens were sent to the Compton Herbarium, National Botanic Gardens, Kirstenbosch, though a few duplicates have been returned to Mbabane. With few exceptions, however, the records made by earlier collectors, unless verified, have not been included, but their numbers are very small. The List also includes a few of the aliens which have established themselves firmly within the Territory. The total number of species (varieties and subspecies not being counted separately) recorded is 2,350, divided between 812 genera and 147 families.

The great majority of the plants recorded were collected by myself, but I have had valuable contributions and help in the field from my Assistant, Mr Ben Dlamini, Miss M. C. Karsten, Dr. G. W. Reynolds, Major O. B. Miller, Colonel and Mrs. R. Bayliss and others; and a number of specimens have been received from members of the staff of the Department of Agriculture.

The identification of the specimens has been carried out with generous assistance from the staffs of the Botanical Research Institute, Pretoria and of the Compton Herbarium, Kirstenbosch: without this co-operation it would have been impossible to complete a Check List, or in fact to carry on the Survey to its present stage. Whenever possible, duplicate specimens have been presented to these two institutions.

I am indebted to Dr. E. A. Schelpe for revising the Pteridophyta and Orchidaceae, and to the Director and Staff of the Botanical Research Institute, Pretoria, for checking nomenclature in other groups.

The arrangement of the Spermaphyta in the Check List follows that in Phillips' "Genera of South African Flowering Plants" 2nd edition, 1951, itself founded on Dalla Torre and Harms, in respect of families and genera. Species, however, have been arranged alphabetically under their genera, for the sake of convenience. The numbering of the genera follows Phillips, except in the

case of genera established since that work was published, for which arbitrary numbers have been assigned, corresponding generally with those used in the Botanical Research Institute, Pretoria. The Pteridophyta are arranged and the genera numbered according to Sim's "Ferns of South Africa", 2nd edition, 1915.

A considerable number of plants have not yet been fully identified: these are recorded by their collection numbers at the foot of each list of species. (C. = Compton): "sp." indicates that identification may be possible with fuller material or reference to other herbaria; "sp. nov." indicates that the plant is regarded as certainly an undescribed species. An asterisk indicates that the species has been authentically recorded, but is not represented in the Herbarium. These records will form a guide for future work, with a Second and more or less definitive Check List or a Flora in view.

In 1912 Dr. J. Burtt Davy and Mrs. Leendertz Pott compiled a "First Check List of the Flowering Plants and Ferns of the Transvaal and Swaziland" (Annals of the Transvaal Museum, May 1912). Though their List included Swaziland plants it contained no indication as to the species occurring in Swaziland whether in that country alone or in common with the Transvaal. At that time the flora of the Territory had been very little explored, and in fact the records given for Swaziland in Burtt Davy's Flora of the Transvaal (1925/1932) are extremely scanty. The total number of species recorded as occurring in Swaziland in the first two Parts (all that were completed of the projected four Parts) of Burtt Davy's Flora is only 217. The present Swaziland Check List includes no less than about 1,200 species not mentioned by Burtt Davy in his Check List for the Transvaal and Swaziland together.

It cannot be claimed that the present Check List is free from errors, for which there are many possible sources, well known to every systematist. For such errors all proper regrets are expressed by the author.

In order to amplify the bare list of botanical names, a number of symbols, in four groups, have been placed after each species. These indicate in each case the growth-form, habitat and distribution of the plant in Swaziland. The meaning of the symbols is given in an introductory chapter, this serving also to summarise information on the main geographical and ecological aspects of the vegetation of the Territory.

In the course of collecting, identifying and preserving the Swaziland flora a considerable amount of information and many points of interest have been acquired: and in order to alleviate the austerity of the Check List some of this matter has been written up in the form of "Notes", these forming the third section of this book. These notes can be read as a commentary on the List and as an attempt to convey some of the many features of the rich, varied and beautiful assemblage of plants comprised in the Swaziland flora.

I am deeply indebted to Miss M. C. Karsten for the care and accuracy with which she carried out the arduous task of preparing the typescript.

SYMBOLS USED IN THE CHECK LIST

After the name of each species and its authority a series of symbols is given in order to provide an outline of information as to its growth form, distribution within Swaziland and type of habitat. This information is based almost entirely on the observations of the author supported by material in the Herbarium of the Botanical Survey of Swaziland. It is naturally incomplete, and further study will certainly lead to amplification, especially in respect of the districts in which the various species are found. The concepts of lowveld, middleveld and highveld are also frequently modified by local conditions and cannot always be understood strictly. In fact, the use of symbols of this kind in a Check List would be subject to correction and enlargement in a Flora.

The symbols used fall into four groups, separated by full stops in each case: they may be used singly or in combination. For instance TSuc means that the plant is a succulent tree: LMH means that it occurs in low-, middle- and highveld: FR means that it occurs on rocks in a forest: MbMk means that it occurs in the Mbabane and Mankaiana Districts.

Anyone who studies the plants of Swaziland in the field will find that these symbols are for guidance and record, not to be taken strictly, and certainly open to addition from his own observation. In this as in other respects this is definitely a *First Check List*, intended as a summarised record of study to the present date, as a basis for additions and corrections, and as the foundation of a full *Flora* of the Territory.

The following is a list of the symbols used. Explanatory notes are added below.

(1) *Growth Forms*

- T. Trees
- Sb. Shrubs
- C. Climbers
- Hb. Herbaceous plants
- Bb. Bulbous plants
- Suc. Succulents
- P. Parasites
- E. Epiphytes
- W. Weeds
- A. Aquatics

(2) *Main Geographical Divisions*

- L. Lowveld
- M. Middleveld
- H. Highveld

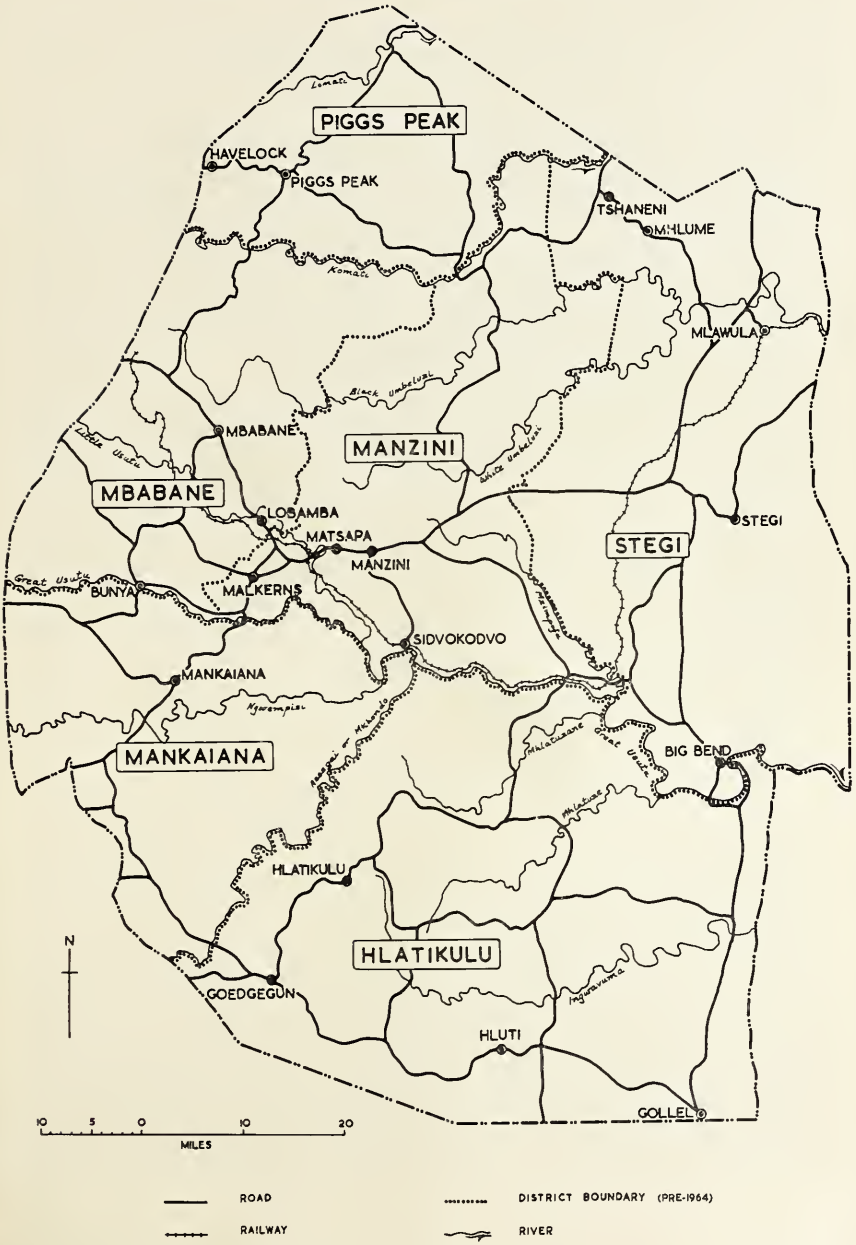
(3) *Vegetational and Habitat Types*

F. High Forest
G. Open Grassland
B. Bushveld and Savannah
S. Swamp
R. Rock outcrops

(4) *Administrative Districts*

Mb. Mbabane
Mk. Mankaiana
Mz. Manzini
Sg. Stegi
Hl. Hlatikulu
Pp. Pigg's Peak

SWAZILAND – GENERAL MAP



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EXPLANATION OF THE SYMBOLS

(1) *Growth Forms*

The first symbol in the brackets after the name and authority of a plant indicates the growth form and other features of the plant itself. A few notes may be given in explanation, but it must be understood that many plants do not fall easily into the groups in which they are placed, and the grouping is a general guide rather than an exact classification. Conditions may, for instance, determine whether a certain woody plant may develop into a typical tree-form or whether it may be stunted and better described as a shrub: in such cases the group in which the plant is placed would indicate its full unhindered development under favourable conditions—i.e. it would be called a tree.

T. Trees. A typical tree is a woody plant with a single main trunk from which spring lateral branches. Under adverse conditions, damage by fire, browsing animals, etc. many trees are deformed and may be shrub-like. Some plants with single erect trunks which, however, can hardly be called woody, may also be included in this group (e.g. *Dracaena hookeriana*, *Aloe bainesii*).

Sb. Shrubs. These are woody plants which do not tend to produce a single main trunk, branching taking place from ground level upwards and the plant consisting of many more or less equivalent and often interlacing branches. In some cases, however, plants may often have an erect main stem, but are of small stature and limited development, and can hardly be classed as anything but shrubs. This applies, for instance, to several Leguminosae (e.g. *Psoralea pinnata*, *Indigofera galpinii*). Further, some stout branching plants are by no means woody, but are conveniently grouped as shrubs (e.g. *Aloe arborescens*, *Pelargonium acraeum*).

C. Climbers. This includes plants, either woody or herbaceous, with elongated shoots which depend on other vegetation for support. Some have special tendrils, some twine round their support, some scramblers are assisted by hooks and prickles, and some potential climbers may remain as trailers in the absence of suitable support. Many climbers have perennial shoots which become woody, although remaining flexible, and these are known as lianas.

Hb. Herbaceous Plants. This group includes a large number of growth-forms in which the stems are relatively soft, secondary growth not going on long enough to produce rigid woody tissues. Annual plants are scarce in Swaziland, but there are great numbers of perennial plants, in a large proportion of which the leafy stems are produced during the summer months and die off at the onset of the dry winter, the plant "resting" in the form of persistent underground root-stocks until the rains return in spring. The great majority of the grasses belong to this group: in the case of most of the Iridaceae, Liliaceae and other mono-

cotyledonous families, which have herbaceous shoots, it is more convenient to group them under the heading of Bulbs, etc.

Bb. Bulbous Plants, etc. In this group are placed a large number of perennial plants whose underground resting organs have a swollen form and act as storage receptacles for food materials and water: these organs are known as bulbs when the storage tissues are thickened leaf-bases, corms when they are more or less spherical thickened stems, rhizomes when they are elongated thickened stems. The great majority of the petaloid Monocotyledons (Liliaceae, Amaryllidaceae, Iridaceae, Orchidaceae, etc.) fall into this category. There are also a number of dicotyledonous perennials which have tubers as storage organs (e.g. many Asclepiadaceae), but these have mostly been placed in other groups.

Suc. Succulents. This group includes a great variety of plants whose most conspicuous feature is the fleshy thickening of their aerial parts for storage of water during long dry periods. The thickening may be in the stems or in the leaves or in both. In many stem-succulents the leaves are rudimentary. Both types may occur in the same genus—e.g. *Cissus succulentus* is a stem-succulent, *C. rotundifolius* a leaf-succulent. Leaf-succulence is the prevailing type in the Crassulaceae and the genus Aloe, stem-succulence in many of the Euphorbias and Asclepiads.

P. Parasites. A considerable number of plants are dependent, in whole or in part, on the food materials provided by the "host plants" to which they attach themselves. Well known examples of partial parasites are given by the genera Viscum and Loranthus, attached by special suctorial organs to the branches of trees and shrubs, from which they derive their mineral requirements, but are able to assimilate carbon from the air by virtue of the green chlorophyll in the leaves or stems. Less obvious partial parasitism is shown by the genera Thesium and Alectra in which the attachment is to the roots of the host plants. Total parasites, in which chlorophyll is absent and which depend on the host plants for all food requirements, are scarce, the conspicuously-flowering genus Harveya furnishing almost our only examples.

E. Epiphytes. The habitat of many of our plants is upon the branches or trunks of trees or on almost bare rock surfaces. They are independent of soil in any quantity, but absorb their water and nourishment from plant debris through special clasping and absorbent roots. This group includes various Ferns and Lycopods, species of Peperomia and Streptocarpus and several Orchids. They all need abundant supplies of water at times, but are capable of tiding over dry periods through water-storage in pseudobulbs in the Orchids, succulence in the Peperomias or "resurrectionism" in the Ferns and Streptocarpus.

W. Weeds. A very large number of plants are able to become weeds, taking advantage of bare soil disturbed by agriculture, road-making, erosion, etc. The majority of these opportunists are annuals, most of them originating outside Southern Africa. Nearly all of them are liable to be a nuisance and some are

definitely noxious: a few have been adopted as food materials (e.g. species of Portulaca and some Amarantaceae). Only a few of the numerous weeds are included in the Check List.

A. Aquatics. This is a group, depending on open water and including free-floating plants (e.g. *Utricularia inflexa var. stellaris*), plants rooting in underwater mud with leaves and flowers at the surface (e.g. Nymphoides, Nymphaea), completely or almost submerged plants (e.g. Potamogeton spp., Lagarosiphon). The great number of species inhabiting swamps, either permanent or temporary, are grouped as herbs ("Hb."), the swampy habitat being indicated by "S" in the third group of symbols.

(2) *Main Geographical Divisions**

Four well-defined geographical regions extend logitudinally north and south throughout Swaziland in roughly parallel belts. The Highveld (westernmost), Middleveld and Lowveld are of more or less equal breadth, while the Lebombo Mountains form a markedly narrower strip along the eastern border (see Map 2). The altitude and climate of the Lebombo are similar enough to Middleveld conditions for the two regions to be considered together for present purposes, and the term "Middleveld" as used hereafter includes the Lebombo.

The Highveld—to the Swazi Inkangala—is a northeastward continuation of the Natal Drakensberg but, whereas the latter normally has one imposing facade, the mountainous massifs in Swaziland are, owing to the absence of a resistant capping rock, broken up and dissected in a wide belt of rugged terrain. The average elevation is 3,500 to 4,500 feet, dropping to less than 3,000 feet in some deep valleys and rising to the summits Emlembe (6,100 feet) and Ngwenya (6,000 feet). The area of the Swaziland Highveld is 2,000 square miles and the 1963 population was about 95,000.

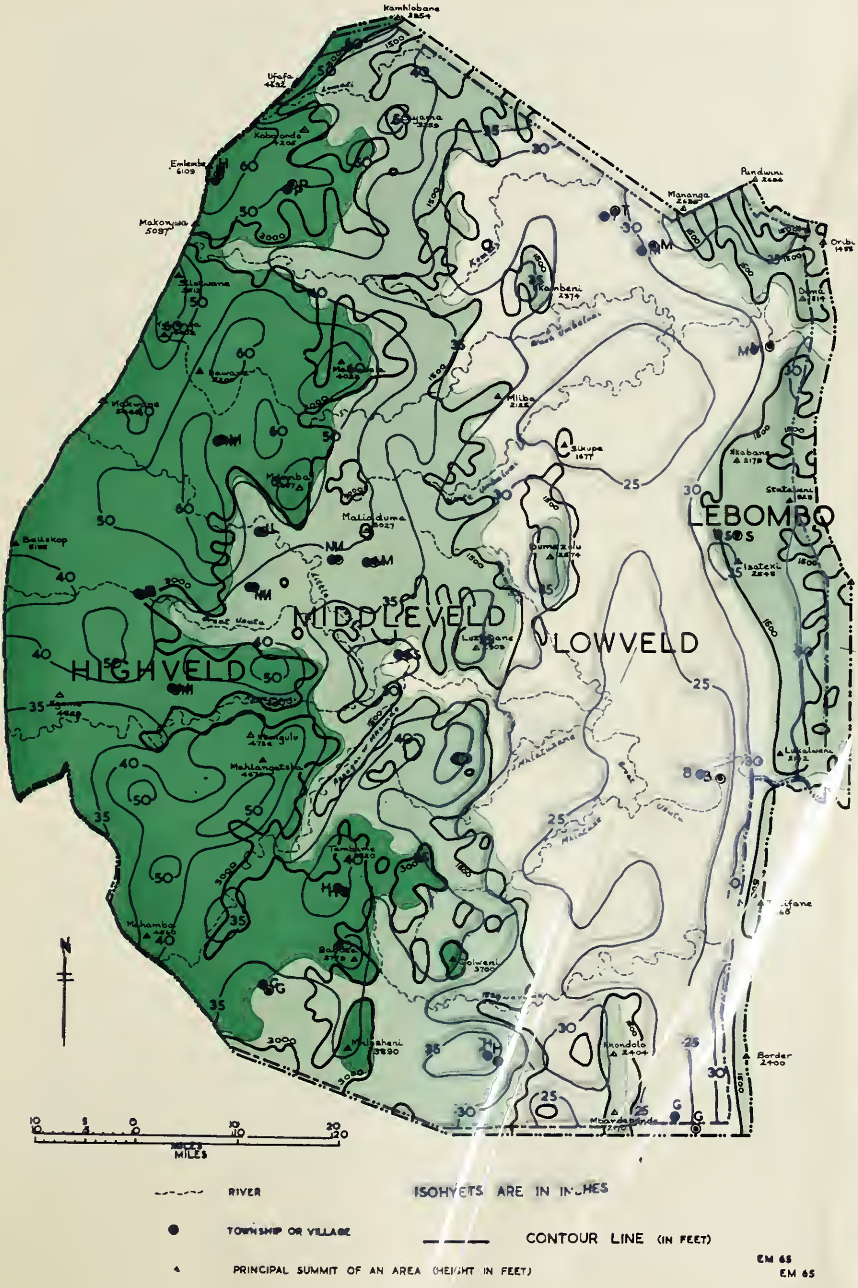
The Highveld has a humid near-temperate climate, with 40 to 90 inches mean annual rainfall and quite severe frost most winters. The landscape is seamed by numerous valleys and gorges of perennial streams. The steep, rocky or boulder-strewn slopes of granite mountains and quartzite ridges, unused for agriculture, harbour natural vegetation. On gentle gradients, however, the rock is cloaked by deep red, orange and yellow ferralitic† soils, generally of medium texture and good physical properties, though very acid, and the growing of maize or of economic timber (exotic pines, gums and wattles) has reduced the grazing area for sheep and cattle considerably over the past few decades.

*This introductory section to "Main Geographical Divisions", has been kindly contributed by Mr. George Murdoch, Soil Surveyor in the Swaziland Department of Agriculture. Any small discrepancies which may occur between this and the rest of the text are the natural result of the impossibility of accurately defining separate personal concepts of fluid and transitional geographical features. R.H.C.

†Soil nomenclature is that of the Soil Map of Africa, as defined by J. L. D'Hoore (1963), Joint Project CCTA/CSA No. 11, Soil Map of Africa at 1 : 5,000,000, Document 35, Leopoldville Symposium on Tropical Soils. See also map **098**.

SWAZILAND – MEAN ANNUAL RAINFALL MAP 2

SWAZILAND – GEOGRAPHICAL REGIONS



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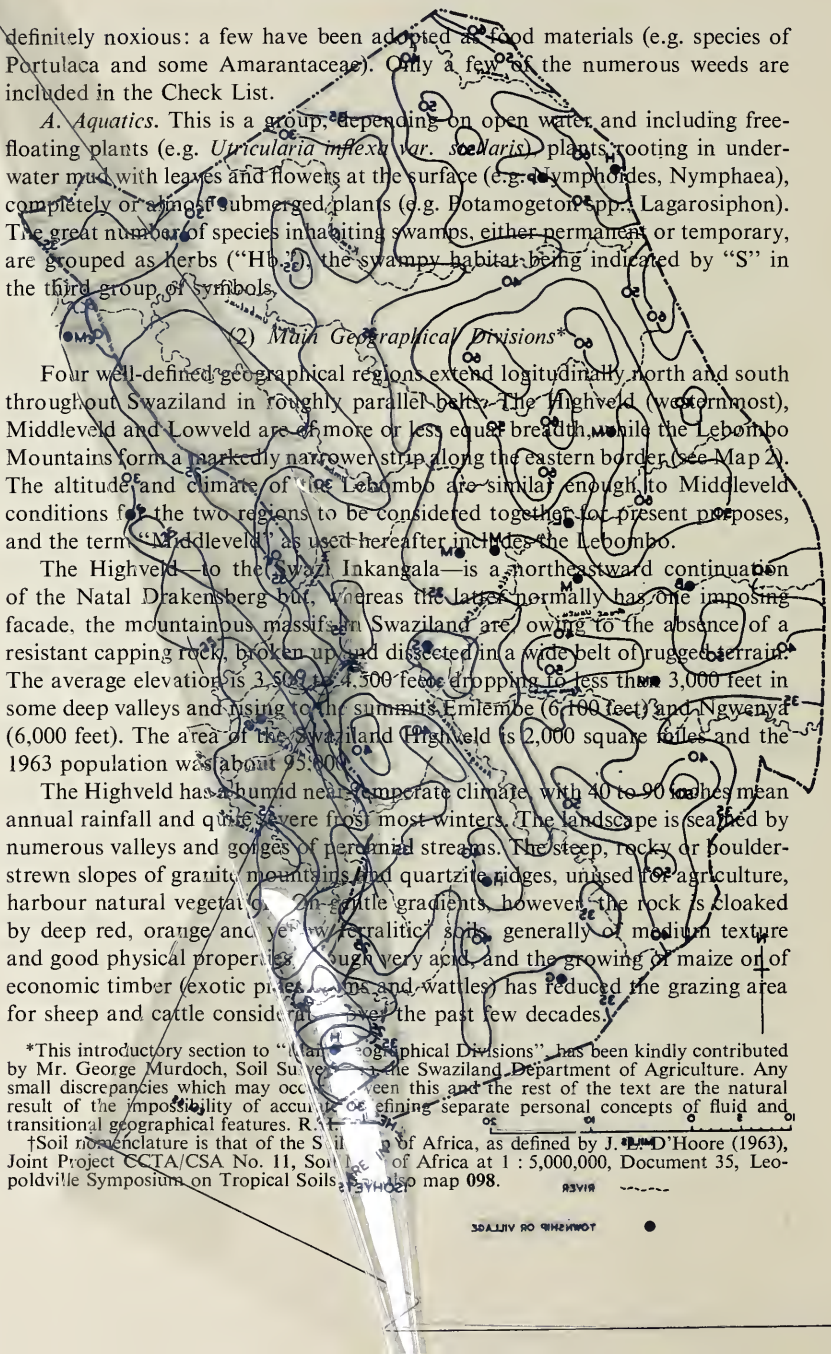
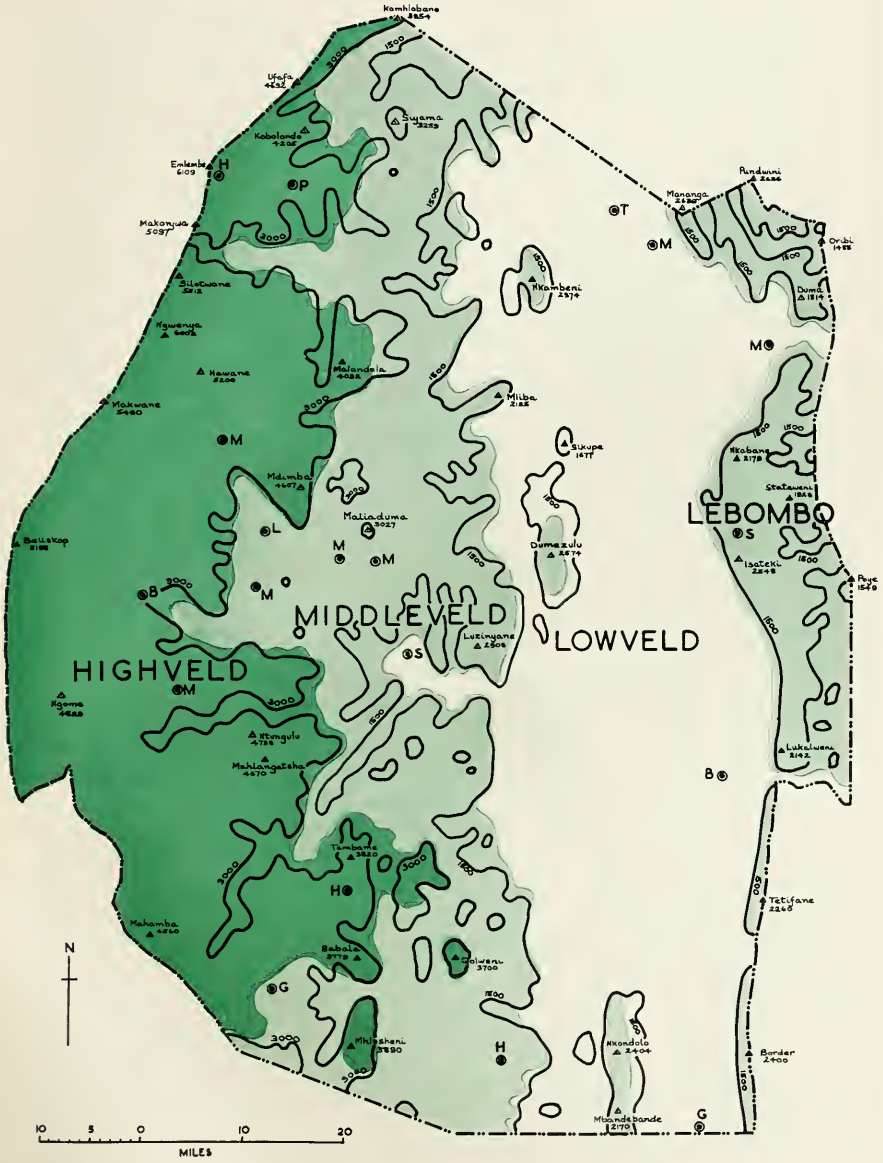


MAP 2

SWAZILAND — GEOGRAPHICAL REGIONS



Gradually widening valleys and some abrupt descents, as from Mbabane to Ezulwini, betoken the Highveld-Middleveld boundary. Including the Lebombo, the Middleveld has a total area of 2,400 square miles and 1963 population of 129,000. The average altitude is 2,000 to 2,500 feet, the range in elevation being from 1,100 to 3,500 feet and in mean annual rainfall from about 26 to 45 inches. The climate is subtropical, with frost rare or absent. Though hilly in many parts, the region offers ample scope for mixed farming.

The geological foundation of the Middleveld is mainly granite, as in the Highveld, and gneiss with some occurrences of dolerite, quartzite, etc. The Lebombo Range is built of andesite and rhyolite. The principal soils of the rolling countryside are deep friable red loams and clay loams, ferralitic or ferrisolic, interspersed with shallower profiles, often transitional between lithosols and fersialitic soils. Most valley bottoms are occupied by clearcut drainage channels with little alluvium, but here and there seasonal marshes (vleis) occur. Streams rising above about 2,500 feet are perennial, the remainder intermittent.

The Lowveld—Ihlanze to the Swazi—is a gently undulating lowland, but seldom a true plain, with isolated knolls and ridges rising abruptly above the general level of 500 to 1,000 feet. In fact the altitudinal range is 200 to 2,400 feet and the rainfall varies from 20 to 35 inches per annum on average. The seasonal distribution of rain, with 80% coming in the summer six months October to March, is the same as in the Middleveld and Highveld, but the amount received varies much more from year to year and may be as little as 10 inches. The Lowveld's climate is thus definitely sub-humid and almost tropical. Frost is unknown except in bottomlands.

The Lowveld covers 2,300 square miles and in 1963 had 65,000 inhabitants. There are two contrasting farming systems, extensive cattle-rearing and intensive irrigation of sugar-cane, citrus and rice. The geology is complicated, but in general it may be said that acid rocks (granites and the Ecca sandstones and shales which contain seams of coal) underlie the western Lowveld, while basic rocks (basalt and dolerite) are found mainly in the east. The soils reflect this pattern, those of the west being mostly fersialitic, while to the east are black and red clays—vertisols and "red-brown soils of the semi-arid tropics"—some of the most naturally fertile soils in the country. There are also some alluvial terraces one to two miles wide.

An imposing escarpment marks the Lowveld-Lebombo boundary, but westwards the Middleveld and Lowveld interfinger or show a gradual transition in a belt which may be as much as 5 or 6 miles wide. For mapping purposes single lines have been drawn demarcating the limits of regions, but it is worth bearing in mind that these are frequently the approximate midpoints of zones of separation, rather than exact boundaries.

Vegetation is influenced by altitude very obviously in Swaziland, though

appraisal of exactly which of several interacting factors gives a certain ecological result is by no means easy. The factors include rockiness (decreases downhill in general), soil fertility (increases from Highveld to Lowveld), rainfall (decreases with elevation usually) and temperature (coolest at highest levels).

L. Lowveld

This type of country extends from our lowest levels along the western foot of the Lebombo escarpment to westward across gently undulating plains and rising to an altitude of about 1,500 feet. It is occupied by different types of bushveld and savannah in which the ground flora is predominantly of grasses with comparatively few herbaceous and bulbous plants and some local succulents, on which trees and shrubs, more or less scattered, throw a light shade. The trees and shrubs belong to a large number of species, best seen in the European ranching areas: in the African areas a great deal of felling has taken place in clearing the ground for crops, only certain trees being left standing: these are chiefly the marula or umganu, *Sclerocarya birrea*, for the sake of its fruit, and species of Ficus, especially *F. sycomorus*, for shade. It is rare to find bushveld vegetation in an unaltered condition in the African areas: and land which has been ploughed up and abandoned is colonised by a few species of grasses and a number of weeds, often aliens.

In some of the areas held by Europeans the actual destruction of the indigenous vegetation has taken place on a much more thorough and extensive scale: great areas have been cleared entirely and planted with sugar-cane, rice and citrus, usually under irrigation, as well as other crops such as cotton and tobacco. It is only in the European areas used for cattle ranching that the indigenous flora of trees, shrubs, grasses, etc. remains in anything like its primitive condition.

Apart from its varied aspect due to the presence of European and African cultivation, several different types of vegetation occur in the lowveld. The most conspicuous differences are connected with the dominance or otherwise of various species of Acacia. In the south-eastern part of the Territory great plain areas are dominated by the knobthorn or umkhaya, *Acacia nigrescens*, a handsome but formidable tree, well spaced on the ground and usually reaching 30–40 feet in height. In other areas the knobthorn is almost absent, and other species of Acacia occur instead, e.g. the flat-crowned *A. tortilis*, *A. senegal* and *A. nilotica*. The ecological factors which determine which, if any, of these thorn-trees should be dominant have not been fully determined.

On the other hand, in great areas of lowveld, especially on gentle slopes, these types of Acacia-savannah or thornveld are replaced by associations of many kinds of trees and large shrubs, and Acacias may be almost or completely absent; the whole vegetation being much richer in species, this applying both to woody types and to grasses and other herbaceous plants.

These non-Acacia types of lowveld are very varied in composition, and though some connexion can be perceived with the different types of soil, no complete correlation can be demonstrated at present. No single species of tree occurs exclusively, though in some local areas a certain species may be abundantly present in comparison with others. For instance, in some sandy soils derived from the granite the umkhonono, *Terminalia sericea*, with silvery leaves, may be conspicuously plentiful. In others, the lidlebelendlovu, *Pterocarpus rotundifolius*, may be locally almost dominant, though kept short through browsing, and only here and there reaching the height to produce its magnificent clusters of flowers. A large number of bushveld trees, individually conspicuous, occur in isolated specimens scattered among the others, seldom growing socially. Some of the more striking of these may be mentioned. The tree fuchsia, umutwa or umvovovu, *Schotia brachypetala*, with its great clusters of deep crimson flowers, produced before the leaves develop, is an occasional associate of the knobthorn. The sausage-tree, umvongotsi, *Kigelia pinnata*, with its hanging strings of large dusky flowers and polony-like fruits up to a foot or more long, is rather a rarity. The umkhuhlu, *Trichilia emetica*, is a conspicuously shade-giving tree and has clusters of greenish flowers and oval fruits. The umkhamkhambe, *Peltophorum africanum*, is a shapely small tree with handsome trusses of bright yellow flowers terminating the branches. The marula, umganu, *Sclerocarya birrea*, is a very frequent and handsome tree throughout; leafless in winter, the catkins of small flowers appearing just before the light green pinnate leaves; the ripe oval fruits being dropped on the ground in great quantities beneath the female trees. The untfombotsi, *Spirostachys africana*, more generally known as the tamboti, is locally frequent. Several species of Combretum, with characteristic 4-winged fruits, are locally plentiful, especially *C. suluense*, *C. apiculatum* and *C. hereroense*. Various species of Ficus, especially *F. sycomorus* which grows to great size, *F. sonderi*, the "strangler" *F. petersii* and *F. capensis* are conspicuous, often remaining uncut as shade trees in the African areas. *Albizia versicolor* is another strikingly handsome tree, especially near streams, though definitely scarce. *Antidesma venosum* is locally plentiful. *Zizyphus mucronata* is scattered freely through many of the lowveld associations. Remarkable rarities, especially in the Lomati valley, are *Sterculia murex* and the huge-leaved *Anthocleista grandiflora:* and *Terminalia phanerophlebia*, *Afzelia cuanzensis*, *Tabernaemontana elegans* are conspicuous trees found here and there especially in the hot river valleys. In a finer classification of vegetation types, the trees and associated plants of the lowveld river valleys would certainly be distinguished, though this is not done here. On the sides of some of the valleys in the Lebombo Mountains, especially around Mbuluzi Poort, there occurs the only forest association in the Territory composed exclusively of one tree species, viz. *Androstachys johnsonii*, the ubukunku.

In addition to the good-sized trees, the bushveld comprises a very varied

assortment of small trees and shrubs, but again without noticeably dominant species. Among these, species of Maytenus (especially *M. senegalensis* and *M. cymosa*), Euclea (especially *E. divinorum*, *E. natalensis* and *E. crispa*), Grewia (especially *G. flavescens*, *G. hexamita*, *G. bicolor* and *G. flava*), *Diospyros lycioides*, *Rhus spinescens*, the abundant *Ehretia rigida* and the less frequent handsome *E. amoena*, *Phyllanthus reticulatus* and *Acalypha glabrata* may be mentioned.

Several perennial climbing or scrambling plants grow over the bushes, sometimes forming dense tangles. Among these may be mentioned *Cocculus hirsutus* often extending into the branches of taller trees, the succulent leafless *Sarcostemma viminale* and the similar *Cynanchum tetrapterum*, *Jasminum fluminense* and *J. multipartitum*, the succulent-leaved *Cissus rotundifolius* and the succulent-stemmed *C. quadrangularis*, *Senecio viminalis*, and a few Cucurbitaceae and Convolvulaceae.

Striking features in the bushveld are two large tree-succulents, *Euphorbia ingens* and *Aloe marlothii*, the latter extending to rocky ground in the middleveld. Other tree Euphorbias, occurring locally, especially in river valleys, are *E. tirucalli*, *E. triangularis*, *E. evansii* and *E. cooperi;* and another tree Aloe, *A. rupestris*, is also a rare occurrence in river valleys.

Among low-growing succulents there are a few remarkable species in the bushveld. *Aloe parvibracteata* occurs in vast numbers on fine silt soils, especially along the western foot of the Lebombos. The Stapelieae include *Stapelia gigantea*, locally abundant, *Huernia zebrina*, *H. hystrix*, *Duvalia polita* and *Stultitia paradoxa*. In the shade of the Lebombo forests occur one Haworthia, *H. limifolia*, one Gasteria, one Pachypodium, *P. saundersiae*, and one Aloe, *A. chabaudii*. Other noteworthy bushveld succulents are the two species of Adenium, *A. swazicum* and *A. obesum* var. *multiflorum*.

Herbaceous plants (apart from the grasses and a number of introduced weeds) are scarce in the bushveld, and the same may be said of plants with underground corms, bulbs or rhizomes. Among the latter may be mentioned the Liliaceous *Albuca bainesii*, *Urginea delagoense* and *U. lydenburgense*, *Drimia alta* and *Sansevieria thyrsiflora;* the Araceous *Stylochiton natalense* and the handsome Amaryllids *Crinum bulbispermum*, *Amnocharis coranica* and *Haemanthus multiflorus*.

Epiphytes are scarce, only a few orchids being represented. Of these *Ansellia gigantea* is the most conspicuous, others being *Acampe pachyglossa* which reaches its southern limit in Swaziland, *Listrostachys arcuata*, and *Mystacidium capense* often found on the trunks of *Euphorbia triangularis*.

Semi-parasites include species of Viscum, especially the leafless *V. verrucosum* on various Acacias, the leafy *V. rotundifolium* on various host-plants, and strikingly beautiful species of Loranthus, especially *L. dregei* on Trichilia and Sideroxylon, *Grewia flavescens*, etc., *L. galpinii* on Trichilia and Sclerocarya, and *L. zeyheri* on species of Acacia.

Finally, and from some points of view most important of all, are the grasses, including a large number of species, many of them the foundation of the ranching industry. Among the most noteworthy and widespread are *Panicum maximum*, *P. deustum*, *P. coloratum*, *Sehima galpinii*, *Themeda triandra*, *Lintonia nutans*, *Sporobolus pyramidalis*, *Aristida congesta ssp. barbicollis* and *Eragrostis superba.* Cyperaceae and Juncaceae are scarce and mainly confined to river-beds and swamps.

Special localities of course have their own special plants. For instance river-banks and often the adjoining flood-plains frequently have tall trees of *Acacia xanthophloea:* sandy river-beds are densely populated by *Phragmites mauritianus*, with various grasses and sedges along their banks: such interesting plants as *Utricularia inflexa var. stellaris*, *Ludwigia stolonifera*, *Aponogeton junceus* and *Marsilea ephippiocarpa* may be found in swamps and open water: and the streams are often fringed with the palm *Phoenix reclinata* which extends into the middle-veld. A great many other plants can be noticed, especially in localities unspoilt by cultivation and overgrazing, and though numerous tropical and subtropical weeds have invaded, chiefly along roadsides and tracks, they have not displaced the indigenous vegetation to any great extent.

M. Middleveld

Middleveld may be taken roughly to define a zone extending from about 1,500 feet altitude (where it merges into lowveld) to about 3,000 feet altitude (where it grades into highveld). It is actually a very ill-defined concept, all the more so as the greater part of it has been modified (and botanically spoilt!) by cultivation, burning and overgrazing. It is often difficult to imagine what this type of country can have been like before the destructive pressure of increasing population bore so heavily upon it.

Moreover, typical middleveld, according to customary ideas, only included areas of relatively gentle slope; that is level or undulating country, mainly between the altitudes above-mentioned, and specially suitable for human habitation and shifting or other forms of agriculture. Where the slopes are steeper, as in the deep montane upper valleys of the larger rivers, it is usually impossible to identify a typical middleveld zone, the vegetation showing a gradual transition from lowveld to highveld as one ascends the hillsides. This probably reflects the less abrupt change in rainfall, temperature and soil. The typical middleveld of the middle-altitude undulating country stops short as the slopes become steeper at the foot of the higher hills.

Judging from what appear to be remnants of the original middleveld, it would seem that it is "thornveld", that is a savannah type with Acacias as the dominant trees and a surface flora of grasses. The chief Acacia is the widely-distributed *A. karroo*, seldom more than 10–12 feet in height: other species occurring are *A. natalitia* and *A. davyi:* there is nothing like the wealth of Acacia

species that occurs in the lowveld. Bushy places on sheltered slopes and in shallow valleys contain a number of other small trees, such as the large-fruited *Combretum zeyheri*, the copiously flowering *Dombeya rotundifolia*, *Cussonia paniculata*, *Ficus ingens*, together with the scrambling *Bauhinia galpinii* and shrubs of various stature. Rocky hills, well seen in the neighbourhood of Manzini, Hele Hele and Malinda, burnt and grazed but not cultivated, carry innumerable *Aloe marlothii* and some striking shrubs such as *Pavetta edentula*. In moist valleys an abundant tree is *Syzygium cordatum* which reaches a considerable size. All these plants may extend into highveld or lowveld or both, so that one can perhaps best regard middleveld, not as a distinct ecological entity, but as a zone of transition between the very distinct vegetational types of the highveld on one hand and the lowveld on the other.

Owing to the more severe treatment that the middleveld has received at the hand of man and its after-effects, through cultivation, overgrazing, trampling, sheet and donga erosion, the making of roads and tracks, it has been invaded by weeds to a greater extent than other regions. Some of them are decidedly noxious—e.g. *Lantana camara*, the Mauritius Thorn (*Caesalpinia decapetala*) and the cockle burs (Xanthium); while other irritating weeds, such as blackjacks (Bidens), starburs (Acanthospermum), gromwell (Lithospermum), khakiweed (*Tagetes minuta*) and others are locally plentiful. Some indigenous grasses may take on weed-like characters—e.g. the dense growth of tall species of Hyparrhenia along roadsides and on disturbed ground.

In middleveld areas where land utilisation is less haphazard and more intensive, the indigenous flora has been entirely wiped out, but at the same time weeds are kept under control, and the orderly production of fruit, grain, and other crops has given a settled and cared-for appearance to the landscape, which may be hoped to be the destiny, under enlightened management, of great stretches of country at present lean, hungry, neglected and depressing.

The Lebombo Range is a very uniform ridge, reaching heights between 2,000 and 2,500 feet, with a steep escarpment on the west where it grades into the lowveld at altitudes between 400 and 1,000 feet. It is sometimes regarded as a distinct ecological entity, and it is certainly difficult to classify under one of the three main divisions of the Territory. The rainfall as well as the altitude of the ridge would, however, place it in the middleveld category, though the natural vegetation is much more densely bushy with a relatively small number of Acacias. The steep escarpment slopes are more or less clothed with trees, their density depending on the rocky nature of the surface and merging into the lowveld associations below. Behind the escarpment ridge are deep ravines draining generally eastward and containing forest with many large trees: and on slopes in the Mbuluzi catchment special types of forest (especially Androstachys) cover the ground. The range is breached by a series of poorts through which pass the rivers Komati (in the Transvaal), Mbuluzi, Usutu and Ingwavuma (in Swaziland)

and Pongola (in Natal), each with its special type of riverine forest, with magnificent specimens of *Ficus sycamorus* and *Acacia xanthophloea*. Specially interesting features of the Lebombo Range are the cycads: *Encephalartos ubomboensis* occurs in groups on rocky outcrops on the ridge itself, while *E. umbuluzensis* occurs plentifully and *E. villosus* more sparingly in the deep ravines.

H. Highveld

The highveld is easier to define than the other ecological concepts in Swaziland. It nominally includes the hilly and mountainous country from about 3,000 feet altitude to the summits at over 6,000 feet in the mountain ranges on the north-western border with the Transvaal (Emlembe 6,120 feet altitude being the highest). The dominant vegetation is grassland, gradually becoming shorter with increase of altitude. There is no evidence that the greater part of the grass-covered hills with their usually smooth contours were occupied by forest within the recent geological period, and it is only in specially sheltered or otherwise suitable spots that trees usually occur to-day, though what appear to be limited relics of forest may be noticed here and there, presumably the survivors of repeated grass-fires at their edges.

The extensive areas of pure montane grassland are broken here and there by (1) groups of trees arising in the shelter of surface boulders: by (2) upland swamps, especially in the catchment of the Black Mbuluzi River: by (3) the "alpine" associations of mountain rock outcrops: and by (4) high mixed forest in the deep ravines cut into the mountain sides. These Subsidiary Highveld Associations are well defined and are linked with obvious features in the topography.

Grassland. A large number of species of grass compose montane grassland in Swaziland, nearly all of them being of the tussock or bunch type: so that although the veld may look uniformly covered from a distance, there is no real turf formation. The grasses are mostly wiry and narrow-leaved and owing to the relative poverty of the surface soil in soluble plant-food, the veld is what graziers call "sour" and innutritious. It can be rendered temporarily palatable to sheep (such as are trekked in from the Transvaal in large numbers every autumn), by burning every year or two—a process which, however, tends to impoverish the soil and the vegetation still further.

Some of the most important of the large number of species composing the mountain grass-veld are *Eulalia villosa*, *Themeda triandra*, *Setaria sphacelata*, *Monocymbium ceresiforme*, *Sporobolus centrifugus*, *Loudetia simplex*, *Rendlia altera*, *Harpechloa falx*, *Ctenium concinnum*, *Eragrostis plana*, *Trachypogon spicatus*, *Alloteropsis semialata* and *Pentaschistis natalensis* (this last a high-altitude species belonging to a distinctively "Cape" genus). All these and other highveld grasses are perennial species, annual grasses such as *Poa annua* and

Eleusine indica only appearing on ground disturbed by cultivation and road-making. Many of the species give the impression of being dominant over considerable areas, the actual species having this appearance depending on altitude, climatic and exposure factors and also on the frequency of burning and the degree of grazing—factors of great importance to pastoralists.

A feature of montane grass-veld, which is shared to a much less extent by the middleveld and almost not at all by the lowveld, is the abundance of perennial plants, both monocotyledonous and dicotyledonous, which are associated with the grasses. These are characterised by having persistent corms, rhizomes, bulbs, tubers, rootstocks or woody subterranean stems, which lie dormant at various depths in the soil during the dry winter, producing their aerial stems, leaves and flowers after the onset of the spring rains. (Some of them, e.g. *Moraea galpinii*, *Urginea depressa* and *Apodolirion buchananii*, may even flower in anticipation of the rains, their leaves following some weeks later.)

Among these perennial associates of the highveld grasses there are several Asclepiads including species of Asclepias, Xysmalobium, Pachycarpus and Raphionacme springing from underground tubers; plants with woody root-stocks such as the Euphorbiaceous *Cluytia monticola* and *C. virgata*, several species of Acalypha and a large number of Leguminosae of which the most extreme "geophyte" is *Elephantorrhiza elephantina*, closely related to the tree and shrub Acacias. Other dwarf plants with underground stems and with close arboreal relatives also occur, such as *Parinari capense*, a Rosaceous plant related to the mobola plum, the Rubiaceous *Pachystigma pygmaea* (with its arboreal relative *P. macrocalyx* frequent among neighbouring boulders), and the similar *Pygmaeothamnus chamaedendrum:* this whole group—as well as many other "dwarf" species—presenting an interesting study in parallel evolution. Other conspicuous dicotyledonous highveld associates are the attractive blue-flowered *Clerodendron triphyllum*, *Wahlenbergia undulata*, *Conostomium natalense* and *Pentanisia prunelloides; Justicia anagalloides;* many Compositae including *Callilepis laureola*, *Dicoma zeyheri*, *Chrysanthemum osmitoides*, several species of Senecio, Berkheya, Gerbera, Vernonia, Aster, Helichrysum and many others. There are also a considerable number of monocotyledonous plants with various types of underground storage organs. Among these are several species of Anthericum, Eriospermum, Scilla, Dipcadi and other Liliaceae; showy Amaryllids such as *Haemanthus magnificus*, *Boophane disticha*, *Brunsvigia radulosa*, *Cyrtanthus bicolor* and several species of Hypoxis; a few Orchids such as *Habenaria dives*, *Satyrium cristatum*, the showy *Disa nervosa* and *D. patula*, *Herschelia baurii*, *Eulophia clavicornis* and *E. ensata* and a few Iridaceae, especially *Moraea spathulata* and *M. pubiflora*, *Aristea woodii*, *Dierama medium* and other species, *Gladiolus crassifolius*, *G. praelongitubus* and the abundant *Watsonia densiflora* and *W. watsonioides*.

Another feature of the open mountain grass-veld areas is the presence of a

number of plants belonging to genera whose centre of distribution is in the south-western Cape Province, the number of species gradually thinning out in the eastern Cape and along the Drakensberg into the mountains of Central Africa. These almost all occur in Swaziland at altitudes of 4,000 feet upwards. The Proteaceae are represented by the shrubby Proteas *P. gaguedi*, *P. rouppelliae*, *P. rhodantha* and the dwarf *P. simplex*, and by *Leucospermum gerrardii*. The Ericaceae include *Erica woodii*, *E. holtii*, *E. cerinthoides*, *E. barbertona*, *E. caffrorum*, *E. drakensbergensis* and *E. leucopelta*. Other plants, with "Cape" affinities, are two species of Muraltia and several Polygalas, *Pelargonium acraeum* and other species, *Oxalis obliquifolia*, the Restionaceous *Restio sieberi*, three species of Cliffortia, a Psammotropha, a Heliophila and *Phylica paniculata*. Many other apparent relations with the "Cape" flora can also be recognised. The whole picture reflects the migration and gradual thinning-out of "Cape" plants, from their original home or focus in the south-western Cape, along the eastern side of Africa, combined with evolution, in the course of the ages since they arrived there, probably from an earlier "Antarctic" source. This "stream of migration" northwards followed approximately the same route as the stream in the opposite direction which resulted in the presence of "tropical" types in the Cape, especially in the forests.

Subsidiary highveld associations

1. *Association of boulder-groups.* Much of the granite country in the west and north-west of Swaziland has isolated groups of superficial boulders scattered over the otherwise smoothly contoured hills. These constitute a plant-habitat distinct from that of the grass-veld itself, and provide suitable localities for a number of trees quite different from those of the montane forests. The decisive difference seems to be the protection given by the crevices between and at the base of the boulders to the germinating seeds which may lodge there—protection from grass-fires, from grazing by wild and domestic animals and from too great desiccation, these adverse factors generally preventing the establishment of tree seedlings in the open veld. Sometimes half a dozen or more different tree species are to be found in a single boulder group: they are all relatively small light-demanding trees often with sturdy and gnarled trunks. Among the most frequent are *Halleria lucida*, *Ficus ingens*, *Cussonia paniculata*, *Psychotria capensis*, *Burchellia bubalina*, *Pachystigma macrocalyx*, *Pavetta cooperi*, *Cephalanthus natalensis*, species of Tricalysia and Pterocelastrus, *Maesa lanceolata*, *Rapanea melanophloeos*, *Bequaertiodendron magalismontanum*, *Ochna natalitia* and *Grewia occidentalis*. Various shrubs, climbers and shade loving plants are associated with the trees, and in the shade of overhanging boulders a special community of ferns, Cyperaceae, small bulbous plants and species of Streptocarpus (especially *S. galpinii* and *S. davyi*) develops. The whole forms a special association of limited extent, sharply marked off from the surrounding grass-veld.

2. *Montane swamps.* These are densely clothed with herbaceous vegetation comprising a great range of species, woody plants being entirely absent. From the botanical point of view these swamps are, for their size, richer in species than any other plant-community in the Territory. They are best developed in the relatively level area of "sponges" at the headwaters of the Black Mbuluzi River, at a general altitude of about 4,500 feet above sea level. The actual floristic composition of the vegetation varies from one swamp to another, no doubt according to the level of the water table at critical seasons of the year. Unfortunately these swamps are being drained with the result that they are being invaded by dry-land plants; their special flora has become very noticeably poorer in the course of the last ten years or so, and there is no doubt that this process of botanical degeneration will continue.

The prevailing vegetation of these upland swamps consists of grasses and sedges, with a great number of other herbaceous perennial and bulbous plants intermixed. Among the most noticeable grasses are *Eriochrysis pallida*, *Hemarthria altissima*, *Arundinella nepalensis*, *Digitaria tricholaenoides*, *Setaria sphacelata* sspp. *nodosa* and *pyropea*, *Pennisetum macrourum*, *P. thunbergii*, *Leersia hexandra*, *Agrostis barbuligera*, *A. eriantha*, *Stiburus alopecuroides* and *Festuca caprina*. The sedges include *Ascolepis capensis*, *Cyperus denudatus*, *C. distans*, *Pycreus macranthus*, *P. mundii*, *P. oakfortensis*, *Fuirena pubescens*, *Eleocharis palustris*, *Schoenoxiphium sparteum* and *Carex cernua*.

A number of plants, similar in habitat to the grasses and sedges, are locally plentiful: such are *Xyris rehmannii*, *Eriocaulon dregei* and *E. sonderianum*.

Among the bulbous and tuberous plants are the Amaryllids *Brunsvigia natalensis*, *Anoiganthus breviflorus*, *Nerine angustifolia;* the Liliaceae *Bulbine stenophylla*, *Scilla diphylla*, *S. cooperi*, *Ornithogalum inconspicuum*, *Eriospermum cooperi*, *Eucomis pole-evansii;* the Iridaceae *Curtonus paniculatus*, *Hesperantha lactea*, *Dierama medium* var. *mossii;* and the Orchids *Habenaria cornuta*, *Neobolusia tysonii*, *Satyrium atherstonei*, *S. parviflorum*, *Disa macowanii*.

The vegetation of the swamps is mainly monocotyledonous, but there are a few dicotyledonous plants which occur normally. Among these are the Labiates *Pycnostachys reticulata* and *Mentha aquatica;* the Composites *Aster bakerianus*, *Nidorella anomala* and *Denekia capensis;* the Leguminous *Aeschynomene wilmsii;* the Rosaceous *Alchemilla elongata;* and the remarkable insectivorous plants *Drosera madagascariensis*, *Utricularia livida* and *U. prehensilis*.

Along the margins of the swamps where they merge into drier ground there may be dense masses of *Cliffortia linearifolia*, together with *Crassula spectabilis*, *Nemesia capensis* and many other characteristic plants.

The whole assemblage of plants in these upland swamps is of great botanical interest, and it is most regrettable that drainage works should be allowed to cause such degeneration—quite apart from the consequent damage to the flow of the rivers which are fed and stabilised by the "sponges".

3. *Rock outcrops.* At altitudes of from about 5,000 feet upwards, where misty conditions are very frequent in summer, the outcrops of rock (generally other than granite) bear a characteristic flora, several members of which may be compared in growth and form with the "alpines" of the mountains of Europe and Asia. The most characteristic of these are the Composites *Ursinia saxatilis* and the "everlastings" *Helichrysum chionosphaerum*, *H. galpinii* and *H. nanum*, and the succulent *Crassula compacta* and *C. setulosa.* Other associated plants, not to be called "alpines", are *Erica caffrorum*, *Crassula parvisepala*, *Anthospermum hispidulum*, and in some localities the remarkable Proteaceous *Leucospermum gerrardii*, *Erica barbertona*, *Muraltia empetroides* and *Restio sieberi.* It is noteworthy from a plant-geographical point of view that the majority of these plants seem to be outliers of typically "Cape" families: and a relationship between altitude and latitude can be noted.

At somewhat lower altitudes and frequently on granite outcrops a number of characteristic plants occur, the actual species being related to the depth of the peaty deposits of soil on the surface or in crevices and depressions in the rocks. The most striking of these is *Vellozia clavata*, often very abundant, and the handsome *Aloe suprafoliata.* The Cyperaceous *Coleochloa setifera* is very characteristic on exposed surfaces. Several succulents occur, including *Crassula argyrophylla* and *Senecio galpinii:* also the two "resurrection plants" *Selaginella dregei* and *Myrothamnus flabellifolius.* In shallow peat overlying granite surfaces there occur locally the interesting plants *Gladiolus praelongitubus*, *Rhodohypoxis baurii* and *Wurmbea kraussii:* and in the narrow fissures and broken areas of exposed granite "domes" one finds such plants as *Streptocarpus dunnii*, *Aloe chortolirioides*, *A. arborescens*, *Vernonia monocephala*, *Agapanthus caulescens* and a large range of other plants, too numerous to mention.

4. *Montane Forests.* At altitudes from about 4,000 feet upwards "high forest" occurs in the deeply cut and steep ravines, and to a lesser extent on thickly boulder-strewn slopes. These montane forests are all of limited extent, only occupying a small portion of the total highveld zone. Some ravines which might appear suitable for forest development are devoid of it, the lines of the streams being marked by scattered Cyathea tree-ferns: and it is possible that at one time forest may have existed there, having disappeared through tree-felling and the encroachment of fires in the adjacent grass-veld: but there is no good evidence in favour of the current idea that the whole of the mountains were once covered by trees.

The mountain forests usually end abruptly at the rims of the ravine, having a well-defined line of separation from the surrounding grassland. The effect of grass burning can be recognised in this: the repeated fires (which have occurred from time immemorial) destroying any small tree seedlings which may be trying to establish themselves outside the forest margin, while the full grown trees may be scorched but not killed.

The best examples of montane forest are to be seen in the ravines of Emlembe and adjacent mountains, while smaller forests occur in many of the ravines surrounding Mbabane: and there are two or three curious patches of forest in relatively shallow depressions in the hills near Hlatikulu.

The trees composing the forests are almost entirely distinct from those found among the scattered boulder groups, and the shrubs and herbaceous plants forming the lower strata of the forest vegetation are also distinct from those found outside. The whole forest at its best is a well-marked ecological entity, very rich in species and forming a natural vegetational climax.

A considerable number of species of trees occur, sometimes reaching heights of 80–100 feet, their crowns forming a continuous canopy casting deep shade below. Some of the most characteristic large trees are *Syzygium gerrardii*, the two yellowwoods *Podocarpus latifolius* and *P. henkelii*, *Cussonia umbellifera*, *Garcinia gerrardii*, *Rawsonia lucida*, *Xymalos monospora*, *Pittosporum viridiflorum*, *Trichocladus grandiflorus* and *Kiggelaria africana*.

The margins of the forests display a number of other trees of somewhat smaller stature, with most of their leafing and flowering branches facing outwards. Among these may be mentioned *Trema orientalis*, *Faurea galpinii*, *Cassinopsis ilicifolia*, *Choristylis rhamnoides*, *Apodytes dimidiata* and *Aphloia myrtiflora*.

The woody undergrowth or "shrub layer" in the forest consists partly of young trees which have not yet reached the canopy (among which Podocarpus saplings are frequent) and partly of shrubs belonging to characteristic species. Among these may be mentioned *Polygala galpinii*, *Mackaya bella*, *Vernonia umbratica*, *Piper capense*, *Micrococca capensis* and *Plectranthus fruticosus*, all of which can flower in the forest shade.

Woody climbers or lianas are comparatively few; *Clematis brachiata*, *Secamone alpinii*, *Rhoicissus tomentosa* and *Dalbergia armata* occur, but these are also capable of growing in thickets and bushy places outside the high forest.

The herbaceous layer of ground flora consists largely of ferns, but a few phanerogams also occur. The latter comprise *Lobelia malowensis*, *Aristea ecklonii* and characteristic grasses such as *Oplismenus hirtellus* and *Prosphytochloa prehensilis*. Of the numerous ferns, the Cape tree-fern *Cyathea capensis* is noteworthy, with dense masses of *Hypolepis sparsisora*, *Asplenium theciferum*, *Blechnum attenuatum*, *Asplenium anisophyllum*, *Polystichum lucidum*, *Pteris catoptera*, *Blotiella glabra* and huge plants of *Marattia fraxinea*.

Finally there occur a number of epiphytes (including plants of mossy rock surfaces) of which may be mentioned the orchids *Polystachya ottoniana* and *P. transvaalensis*, *Streptocarpus wilmsii* and *S. cyanea*, the ferns *Loxogramme lanceolatum*, *Polypodium polypodioides*, and rarely the filmies *Hymenophyllum tunbridgense* and *Trichomanes pyxidiferum*.

(3) *Vegetational and Habitat Types*

The third group of symbols indicates the type of habitat in which the species occurs, within the main type of vegetation of which it forms a part. The ecological assemblages have already been described, and it is only necessary to give brief explanation of the symbols.

F. *High Forest.* Dominated by trees with a more or less continuous canopy: includes the trees themselves, the shrubby and herbaceous undergrowth and the trees and shrubs found mainly on the exposed margins of the forest.

G. *Open Grassland.* This comprises the extensive non-swampy areas dominated by grasses of many species and various statures and their perennial herbaceous associates. It also is taken to include, for convenience, the flora, woody as well as herbaceous, of scattered boulder-groups and of exposed stony and rocky slopes.

B. *Bushveld and Savannah.* These are lowveld and middleveld associations with scattered trees, not forming a definite canopy nor generally giving dense shade, with a continuous ground-flora mainly composed of grasses. The savannah types have Acacias as the prevailing trees: the bushveld types have relatively few Acacias but a large variety of other, mainly non-Leguminous, trees.

S. *Swamp.* Under this heading are included areas which can be called "wet", in which the ground is saturated with water for either the whole year or for the greater part of it. For convenience it also comprises permanently wet riverbanks, pieces of open water such as pools and dams, and the flushes below hillside springs.

R. *Rock Outcrops.* These are mainly of the type found in the montane highveld areas, where owing to shallowness of soil and its peaty character the plants are distinct from those of the surrounding grass-veld. The group includes plants of narrow rock crevices, shallow rock pans and peat-covered rock slopes, frequent in the granite country. Rocky outcrops also occur in other areas and often have their own special plants, and such plants are included in this group.

(4) *Administrative Districts*

Until 1964 Swaziland was divided for administrative purposes into six districts, and all the specimens composing the Herbarium of the Botanical Survey are labelled with the district in which they were collected, in addition to more precise records of locality, altitude, etc.

The boundaries of these six districts usually follow well-marked topographical lines, e.g. main rivers: their names follow those of the principal towns in each district.

During 1964 the Territory was newly divided into four administrative districts (named Hhohho, Manzini, Lubombo and Shishelweni). In order to keep the references in this Check List in accordance with the records in the Herbarium,

however, it is thought advisable to adhere to the old demarcation (especially as such artificial delimitations are liable to be changed at any time).

The fourth group of symbols, for districts, therefore, are as follows:

Mb = Mbabane
Mz = Manzini
Mk = Mankaiana
Hl = Hlatikulu
Sg = Stegi
Pp = Pigg's Peak

These names will be found in maps published up to 1963.

Each district contains a wide range of altitude, rainfall, soil, etc., and a considerable variety of vegetational types are found in each of them.

Examples of the interpretation of the four groups of symbols may be given E.g.:

Clivia gardeni Hook. (Bb.H.FR.Mb) indicates that this species (originally named by Hooker) is a bulbous plant occurring in the highveld on rocks in forest in the Mbabane district.

Loranthus zeyheri Harv. (P.LM.B.MzSgHl) indicates that this species (originally named by Harvey) is a parasite occurring in the lowveld and middleveld bushveld association in the Manzini, Stegi and Hlatikulu districts.

Panicum deustum Thbg (Hb.L.BF.SgHl) indicates that the species (originally named by Thunberg) is a herbaceous plant occurring in the lowveld, in bushveld and forest, in the Stegi and Hlatikulu districts.

It should be repeated that the information given in this First Check List is admittedly incomplete. Moreover, it has been impossible to achieve entire consistency in the use of the symbols, which only give a very crude and partial presentation of the infinitely varying facts of growth-form, habitat and distribution. The fuller and more accurate account of the special features of each species must await the production of a formal Flora of Swaziland.

Note on Map 2 and Overlay

The accompanying map based on a plan drawn in the Department of Land Utilisation (now Agriculture) shows the distribution of the types of country commonly known as highveld, middleveld, lowveld and Lebombo, as judged from the nature of the terrain and its relief.

In the course of my study of the vegetation of the Territory, and without knowing of the existence of this plan, I had come independently to the conclusion that the boundaries of the three main types could be taken as approximately

the 1,500 foot contour between lowveld and middleveld, and the 3,000 foot contour between middleveld and highveld.

When these contours were plotted on the original plan it was seen that a remarkably close correspondence existed between the concepts of the main types derived on one hand from topography and on the other from vegetation. The map as printed herewith shows this correspondence.

Part II

SYSTEMATIC CHECK LIST

PTERIDOPHYTA

Filicales

Hymenophyllaceae

1. Trichomanes pyxidiferum L. var. melanotrichum (Schlechtd.) Schelpe (E.H.F.Mb)
2. Hymenophyllum tunbridgense Sm. (E.H.F.Pp)

Cyatheaceae

3. Cyathea dregei Kze (T.H.FG.MbHlPp)
   ,, capensis (L.f.) J.Sm. (T.H.F.HlPp)

Polypodiaceae (sens. lat.)

7. Dryopteris athamantica (Kze) O.K. (Hb.H.G.MbHl)
   ,, inaequalis (Schlechtd.) O.K. (Hb.H.F.Pp)

7a. Thelypteris bergiana (Schlechtd.) Ching (Hb.H.FS.MbPp)
   ,, dentata (Forsk.) E.St.John (Hb.H.F.MbSg)
   ,, madagascariensis (Fée) Schelpe (Hb.H.F.Pp)
   ,, palustris Schott var. squamigera (Schlechtd.) Tardieu (Hb.H.S.Mb)
   ,, totta (Thbg) Schelpe (Hb.LMH.S.Pp)
   ,, sp. nov. aff. T. gueinzii (C.24920) (Hb.H.S.Mb)

10. Polystichum lucidum (Burm.) Becherer (Hb.H.F.MbPp)
   ,, luctuosum Moore (Hb.H.F.Mb)
   ,, macleai (Baker) Diels (Hb.H.F.Mb)

13. Oleandra distenta Kze (E.H.R.Mb)

19. Asplenium aethiopicum (Burm.) Becherer (Hb.H.FG.Mb)
   ,, anisophyllum Kze (Hb.H.F.Pp)
   ,, lobatum Pappe & Rawson (Hb.H.F.Mb)
   ,, lunulatum Sw. var. (Hb.H.F.Mb)
   ,, rutaefolium (Berg.) Kze (E.H.F.Mb)
   ,, splendens Kze (Hb.H.F.Mb)
   ,, theciferum (HBK) Mett. var. concinnum (Schrad.) C.Chr. (E.H.F.MbHl)

21. Blechnum attenuatum (Sw.) Mett. (Hb.H.F.Mb)
   ,, auriculatum Cav. (Hb.H.R.Mb)
   ,, australe L. (Hb.H.F.Mb)
   ,, punctulatum Sw. (Hb.H.FG.MbPp)
   ,, tabulare (Thbg) Kuhn (Hb.H.G.Mb)

26. Pellaea calomelanos (Sw.) Link (Hb.LMH.FBR.MbMz)
   ,, dura (Willd.) Baker (Hb.H.R.Mb)
   ,, quadripinnata (Forsk.) Prantl (Hb.H.F.MbPp)
   ,, viridis (Forsk.) Prantl (Hb.H.FS.Mb)
   ,, ,, ,, ,, var. glauca Sim (Hb.MH.R.MbMk)
   ,, ,, ,, ,, var. macrophylla Sim (Hb.H.F.Mb)

27. Doryopteris concolor (Langsd. & Fisch.) Kuhn var. kirkii (Hook.) Fries (Hb.H.FR.Mb)

29. Notholaena eckloniana Kze (Hb.H.R.Mb)
30. Cheilanthes hirta Sw. (Hb.LM.FR.SgHl)
    ,, multifida Sw. (Hb.MH.R.MbSg)
31. Hypolepis sparsisora (Schrad.) Kuhn (Hb.H.FS.MbPp)
32. Adiantum capillus-veneris L. (Hb.MH.F.MbHl)
    ,, thalictroides Willd. ex Schlechtd. (Hb.H.S.Mb)
34. Pteris catoptera Kze (Hb.MH.F.Mb)
    ,, cretica L. (Hb.H.FS.Mb)
    ,, friesii Hieron. (Hb.LMH.FS.Mb)
    ,, vittata L. (Hb.LMH.S.SgPp)
35. Blotiella glabra (Bory) Tryon (Hb.H.FS.Pp)
39. Pteridium aquilinum (L.) Kuhn (Hb.MH.G.MbHlPp)
40. Polypodium polypodioides (L.) Hitch. subsp. ecklonii (Kze) Schelpe (E.H.F.MbHlPp)
40a. Loxogramme lanceolata (Sw.) Presl (E.H.F.Mb)
40b. Microgramma lycopodioides (L.) Copel. (E.M.F.Sg)
40c. Pleopeltis lanceolata (L.) Kaulf. (E.H.F.Mb)
    ,, schraderi (Mett.) Tardieu (Hb.H.F.MbHl)
42. Elaphoglossum acrostichoides (Hook. & Grev.) Schelpe (E.H.F.Mb)

Gleicheniaceae

46. Gleichenia polypodioides (L.) Sm. (C.H.FS.MbPp)
    ,, umbraculifera (Kze) Moore (Hb.H.G.MbPp)
46a. Dicranopteris linearis (Burm.) Underw. (Hb.H.G.MbPp)

Schizaeaceae

47. Schizaea pectinata (L.) Sw. (Hb.H.G.Mb)
49. Mohria caffrorum (L.) Desv. (Hb.H.G.MbPp)
50. *Anemia simii Tardieu emend. Alston

Osmundaceae

52. Osmunda regalis L. (Hb.H.S.Mb)

Marsileaceae

54. Marsilea ephippiocarpa Alston (Hb.L.S.Sg)

Marattiaceae

55. Marattia fraxinea Sm. var. salicifolia (Schrad.) C.Chr. (Hb.H.FS.MbPp)

Ophioglossaceae

56. Ophioglossum reticulatum L. (Hb.H.G.Mb)

Lycopodiales

Lycopodiaceae

57. Lycopodium carolinianum L. (Hb.H.S.Mb)
    ,, cernuum L. (Hb.H.S.Mb)
    ,, clavatum L. (Hb.H.G.Mb)
    ,, gnidioides L. (Hb.H.R.Mb)
    ,, verticillatum L.f. (E.H.FR.MbHl)

Selaginellaceae

58. Selaginella dregei (Presl) Hieron. (Hb.MH.R.MbMkPpSg)
    ,, kraussiana (Kze) A.Br. (Hb.H.F.MbPp)
    ,, mittenii Baker (Hb.H.F.MbPp)

PSILOTALES

PSILOTACEAE

60. Psilotum nudum (L.) Griseb. (Hb.L.R.Sg)

EQUISETALES

EQUISETACEAE

61. Equisetum ramosissimum Desf. (Hb.L.S.Mz)

SPERMAPHYTA

CYCADACEAE

5. Encephalartos laevifolius Stapf & Burtt Davy (T.H.R.Pp)
   ,, paucidentatus Stapf & Burtt Davy (T.H.F.Pp)
   ,, ubomboensis Verdoorn (T.M.R.SgHl)
   ,, umbuluzensis R. A. Dyer (T.L.F.Sg)
   ,, villosus Lam. (T.L.F.Sg)

CONIFERAE

13. Podocarpus *falcatus R.Br. (T.M.F.Sg)
   ,, henkelii Stapf (T.H.F.MbPp)
   ,, latifolius R.Br. ex Mirb. (T.H.FR.MbPp)

TYPHACEAE

49. Typha capensis Rohrb. (H.LMH.S.MbMkMzSgHlPp)

POTAMOGETONACEAE

58. Potamogeton crispus L. (A.L.S.Sg)
   ,, pusillus L. (A.LM.S.MkSg)
   ,, schweinfurthii A.Benn. (A.L.S.Sg)

APONOGETONACEAE

65. Aponogeton junceus Lehm. ex Schltndl (A.L.S.Sg).

HYDROCHARITACEAE

88. Lagarosiphon muscoides Harv. (A.L.S.Hl)

GRAMINEAE

109. Imperata cylindrica (L.) Beauv. (Hb.H.S.Mb)
111. Eriochrysis brachypogon Stapf ssp. australis J. G. Anderson MS (Hb.H.S.Mb)
   ,, pallida Munro (Hb.H.S.Mb)
112. Miscanthidium junceum (Stapf) Stapf (Hb.M.S.MbHl)
   ,, sorghum (Nees) Stapf (Hb.H.S.MbMk)
113. Eulalia villosa (Thbg) Nees (Hb.H.G.Mb)
119. Ischaemum arcuatum (Nees) Stapf (Hb.LMH.S.MbMk)
119A. Sehima galpinii Stent. (Hb.L.B.Hl)
127A. Hemarthria altissima Poir. (Hb.H.S.Mb)
127C. Rottboellia exaltata L.f. (Hb.LM.S.MbPp)
131. Trachypogon spicatus (L.f.) O.K. (Hb.MH.G.MbMk)

134. Andropogon amplectens Nees (Hb.H.G.Mb)
,, appendiculatus Nees (Hb.H.S.Mb)
,, eucomus Nees (Hb.H.G.Mb)
,, filifolius (Nees) Steud. (Hb.H.G.Mb)
,, gayanus Kunth var. squamulatus (Hochst.) Stapf (Hb.M.B.Sg)
,, huillensis Rendle (Hb.H.G.Mb)
,, ravus J. G. Anderson (Hb.H.G.Mb)
,, schirensis Hochst. var. angustifolius Stapf (Hb.LMH.G.MbMzSgPp)

134A. Sorghum ? halepense (L.) Pers. (Hb.LMH.S.MzSgPp)
,, versicolor Anderss. (Hb.L.B.Sg)
,, verticilliflorum (Steud.) Stapf (Hb.L.S.Mb)

134D. Bothriochloa glabra (Roxb.) A. Camus (Hb.M.S.MbMz)
,, insculpta (Hochst.) A. Camus (Hb.L.B.Hl)

134F. Schizachyrium semiberbe Nees (Hb.LMH.G.MbPp)

134G. Cymbopogon excavatus (Hochst.) Stapf (Hb.LM.G.MbMzHl)
,, validus Stapf ex Burtt Davy (Hb.MH.G.MbMzHl)

134H. Hyparrhenia aucta (Stapf) Stent (Hb.MH.S.MbMz)
,, cymbaria (L.) Stapf (Hb.MH.GS.Mb)
,, dichroa Stapf (Hb.H.S.Mb)
,, dissoluta (Nees) Hubbard (Hb.LMH.GB.MbMzMkHlPp)
,, filipendula (Hochst.) Stapf (Hb.LMH.GB.MbMzSgHlPp)
,, ,, ,, ,, var. pilosa (Hack.) Stapf
,, gazensis (Rendle) Stapf (Hb.H.G.Mb)
,, hirta (L.) Stapf (Hb.H.G.Mb)
,, rufa (Nees) Stapf (Hb.MH.G.Mb)
,, tamba Anderss. (Hb.H.S.MbPp)

134I. Monocymbium ceresiiforme (Nees) Stapf (Hb.H.G.MbPp)

134J. Heteropogon contortus (L.) Beauv. (Hb.LMH.G.MbMz)

134L. Sorghastrum rigidifolium Stapf (Hb.L.B.Mz)

136. Themeda triandra Forsk. (Hb.LMH.G.MbMzSgHlPp)

143. Tragus berteronianus Schult. (Hb.L.B.Hl)

148. Perotis patens Gand. (Hb.LMH.G.MbMkPp)

153. Arundinella nepalensis Trin. (Hb.MH.S.MbMk)

154. Melinis macrochaeta Stapf & Hubbard (Hb.H.G.Mb)
,, tenuinervis Stapf (Hb.H.G.Mb)

161. Paspalum commersonii Lam. (Hb.MH.G.MbMz)
,, urvillei Steud. (Hb.H.G.Mb)

161A. Axonopus compressus (Swartz) Beauv. (Hb.H.G.Mb)

164. Eriochloa borumensis Stapf (Hb.L.B.Sg)

166. Panicum aequinerve Nees (Hb.H.F.Mb)
,, coloratum L. (Hb.LM.B.SgHl)
,, deustum Thbg. (Hb.L.BF.SgHl)
,, dregeanum Nees (Hb.H.S.Mb)
,, ecklonii Nees (Hb.H.G.Mb)
,, glabrescens Steud. (Hb.H.G.Mb)
,, laevifolium Hack. (Hb.H.G.Mb)
,, maximum Jacq. (Hb.LM.B.MbMzSgHl)
,, meyerianum Nees (Hb.L.B.Hl)
,, natalense Hochst. (Hb.MH.G.MbMz)

166A. Alloteropsis semialata (R.Br.) Hitchc. (Hb.MH.G.MbMz)

166B. Urochloa bolbodes (Steud.) Stapf (Hb.L.B.Sg)
„ mosambicensis (Hack.) Dandy (Hb.L.MzSgHl)
166C. Brachiaria brizantha (Hochst.) Stapf (Hb.LMH.G.MbMzSg)
„ dictyoneura (Fig. & de Not.) Stapf (Hb.L.B.Sg)
„ humidicola (Rendle) Schweickerdt (Hb.M.B.Mz)
„ serrata (Spreng.) Stapf (Hb.H.G.Mb)
„ xantholeuca Hack. (Hb.M.G.Sg)
166D. Echinochloa crus-galli (L.) Beauv. (Hb.M.G.Mz)
„ holubii (Stapf) Stapf (Hb.M.G.Mz)
„ stagnina (Retz) Beauv. (Hb.M.G.Mz)
166E. Sacciolepis huillensis (Rendle) Stapf (Hb.H.S.Mb)
166F. Digitaria apiculata Stent (Hb.H.G.Mb)
„ diagonalis (Nees) Stapf (Hb.MH.G.MbMzPp)
„ macroglossa Henr. (Hb.M.S.Mb)
„ pentzii Stent var. stolonifera (Stapf) Henr. (Hb.L.B.MzSg)
„ sanguinalis (L.) Scop. (Hb.MH.G.MbMz)
„ scalarum (Schweinf.) Chiov. (Hb.M.G.Mz)
„ smutsii Stent (Hb.L.B.SgHl)
„ swazilandensis Stent (Hb.M.G.Sg)
„ ternata (Hochst.) Stapf (Hb.M.G.MkSg)
„ tricholaenoides Stapf (Hb.H.S.Mb)
„ valida Stent (Hb.L.B.Hl)
168. Tricholaena monachne (Trin.) Stapf (Hb.L.G.Sg)
168A. Rhynchelytrum repens (Willd.) C. E. Hubbard (Hb.MH.G.Mb)
„ rhodesianum (Rendle) Stapf & Hubbard (Hb.H.R.Mb)
„ setifolium (Stapf) Chiov. (Hb.MH.G.MbMz)
169. Oplismenus hirtellus (L.) Beauv. (Hb.H.F.MbPp)
171. Setaria chevalieri Stapf ex Stapf & Hubbard (Hb.H.F.MbPp)
„ flabellata Stapf (Hb.L.B.MzSg)
„ flabelliformis de Wit. (Hb.M.G.Sg)
„ holstii Hermann (Hb.L.G.Hl)
„ nigrirostris (Nees) Dur. & Schinz (Hb.MH.G.MbMz)
„ rigida Stapf (Hb.M.S.Mb)
„ sphacelata (Schum.) Stapf & Hubbard (Hb.LMH.G.MbSgHl)
„ „ „ „ ssp. pyropea de Wit (Hb.H.S.Mb)
„ „ „ „ ssp. nodosa de Wit (Hb.H.S.Mb)
„ splendida Stapf (Hb.M.G.Mz)
„ woodii Hack. (Hb.L.B.SgHl)
171A. Cymbosetaria sagittifolia (A. Rich.) Schweick. (Hb.L.B.Sg)
174. *Cenchrus ciliaris L. (Hb.L.B.Hl)
175. Pennisetum macrourum Trin. (Hb.H.S.Mb)
„ natalense Stapf (Hb.H.S.Mb)
„ sphacelatum (Nees) Dur. & Schinz (Hb.H.S.Mb)
„ thunbergii Kunth (Hb.H.S.Mb)
191. Prosphytochloa prehensilis (Nees) Schweickerdt (C.H.F.MbPp)
194. Leersia hexandra Sw. (Hb.MH.S.Mb)
201. Ehrharta erecta Lam. (Hb.H.F.Mb)
208. Aristida congesta Roem. & Schult. ssp. barbicollis (Trin. & Rupr.) de Winter (Hb.L.B. MzHl)
„ bipartita (Nees) Trin. & Rupr. (Hb.L.B.Mz)

Aristida recta Franch. (Hb.H.G.Mb)
„ sciurus Stapf (Hb.MH.G.MbMk)
209. Stipa dregeana Steud. (Hb.H.F.Mb)
230. Sporobolus africanus (Poir.) Robyns & Tourney (Hb.H.G.Mb)
„ centrifugus Nees (Hb.H.G.Mb)
„ nitens Stent (Hb.L.B.MzHl)
„ pyramidalis Beauv. (Hb.LM.G.MbMzSg)
„ smutsii Stent (Hb.L.G.Hl)
„ stapfianus Gandoger (Hb.L.B.MzHl)
242. Agrostis barbuligera Stapf var. longipilosa Goossens (Hb.H.S.Mb)
„ bergiana Trin. (Hb.H.G.Mb)
„ eriantha Hack. (Hb.H.S.Mb)
„ natalensis Stapf (Hb.M.S.Mb)
„ semiverticillata (Forsk.) C.Chr. (Hb.H.F.Pp)
273A. Helictotrichon turgidulum (Stapf) Schweickerdt (Hb.H.S.Mb)
277. Tristachya hispida (L.f.) K. Schum. (Hb.H.G.Hl)
278. Trichopteryx dregeana Nees (Hb.H.GS.Mb)
278A. Loudetia densispica Hubbard (Hb.H.G.Mk)
„ simplex (Nees) Hubbard (Hb.MH.G.MbMzMk)
280B. Pentaschistis natalensis Stapf (Hb.H.G.Mb)
280F. Crinipes gynoglossa Goossens (Hb.H.G.Mb)
281. Microchloa caffra Nees (Hb.L.B.Mz)
281A. Rendlia altera (Rendle) Chiov. (Hb.MH.G.MbMz)
282. Cynodon dactylon (L.) Pers. (Hb.H.G.Mb)
285. Harpechloa falx (L.) O.K. (Hb.H.G.Mb)
286. Ctenium concinnum Nees (Hb.H.G.Mb)
288. Chloris gayana Kunth (Hb.LM.G.MbHl)
„ pycnothrix Trin. (Hb.L.B.Mz)
„ *virgata Sw. (Hb.L.B.Hl)
288A. Eustachys paspaloides (Vahl) L. & M. (Hb.L.B.Hl)
300A. Lintonia nutans Stapf (Hb.L.B.Hl)
301. Enneapogon cenchroides (Licht.) Hubbard (Hb.L.B.Hl)
326. Fingerhuthia africana Lehm. (Hb.L.G.Hl)
333. Phragmites mauritianus Kunth (Hb.LMH.S.MbMzMkHlPp)
337. Diplachne eleusine Nees (Hb.L.N.Sg)
337A. Pogonarthria squarrosa (Licht.) Pilg. (Hb.L.B.MbMzSgPp)
341. Eragrostis atrovirens (Desf.) Trin. (Hb.L.B.SgHl)
„ barbinodis Hack. x rigidior Pilg. (Hb.L.B.Mz)
„ caesia Stapf (Hb.H.R.Mb)
„ capensis (Thbg) Trin. (Hb.MH.GS.MbMz)
„ curvula (Schrad.) Nees (Hb.MH.GS.MbMzMk)
„ desolata Launert (Hb.H.R.Mk)
„ gummiflua Nees (Hb.L.S.Sg)
„ heteromera Stapf (Hb.L.B.SgHl)
„ lappula Nees var. divaricata Stapf (Hb.M.G.Mb)
„ micrantha Hack. (Hb.H.G.Mb)
„ namaquensis Nees (Hb.H.S.Mb)
„ plana Nees (Hb.H.G.Mb)
„ racemosa (Thbg) Steud. (Hb.LMH.BG.MbMz)
„ rigidior Pilg. (Hb.L.B.Sg)

Eragrostis sclerantha Nees (Hb.H.G.Mb)
,, superba Peyr. (Hb.LMH.B.S.MbMzSgHl)
,, uniglumis Hack. (Hb.MH.G.Mb)
,, sp. nov. (C.29428) (Hb.L.B.Hl)
,, sp. nov. (Dlamini s.n.) (Hb.H.G.Mb)

346. Koeleria cristata (L.) Pers. (Hb.H.GS.Mb)
371A. Stiburus alopecuroides (Hack.) Stapf (Hb.H.S.Mb)
378. Poa annua L. (HbW. H.G.Mb)
385. Festuca caprina Nees (Hb.H.S.Mb)
,, costata Nees (Hb.H.G.Mb)
,, scabra Vahl (Hb.H.GR.Mb)
393. Brachypodium flexum Nees (Hb.H.F.Mb)
414. Arundinaria tessellata (Nees) Munro (C.L.B.Mz)

CYPERACEAE

452. Lipocarpha senegalensis (Lam.) Th. & H.Dur. (Hb.H.S.Mb)
454. Ascolepis capensis Ridley (Hb.MH.S.Mb)
459. Cyperus albostriatus Schrad. (Hb.LMH.SFR.MbSgPp)
,, amabilis Vahl (Hb.L.B.Mb)
,, articulatus L. (Hb.L.S.Sg)
,, compactus Lam. (Hb.LMH.G.MbHl)
,, denudatus L.f. (Hb.MH.SR.MbSg)
,, difformis L. (Hb.M.S.Mz)
,, distans L.f. (Hb.MH.S.Mb)
,, esculentus L.f. (HbW.MH.G.MbMz)
,, fastigiatus Rottb. (Hb.L.S.MzSg)
,, ? fenzelianus Steud. (Hb.L.S.Sg)
,, haspan L. (Hb.H.S.Mb)
,, holostigma Schweinf. (Hb.H.G.Mb)
,, immensus C.B.Cl. (Hb.LMH.S.MbHl)
,, iria L. (Hb.M.S.Mz)
,, latifolius Poir. (Hb.H.SF.Mb)
,, leptocladus Kunth (Hb.MH.S.Mb)
,, nr. mannii C.B.Cl. (Hb.H.G.Mb)
,, marginatus Thbg (Hb.H.S.Mb)
,, rupestris Kunth (Hb.LMH.R.Hl)
,, semitrifidus Schrad. (Hb.MH.G.MbSg)
,, sexangularis Nees (Hb.L.S.SgHl)
,, smithii McClean (Hb.H.R.Mb)
,, thorncroftii McClean (Hb.B.R.Mb)
,, sp. (C.24606) (Hb.H.F.Mb)

459A. Pycreus albomarginatus Nees (Hb.M.G.Mz)
,, angulatus Nees (Hb.M.S.Mz)
,, flavescens Rchb. (Hb.H.R.Mb)
,, macranthus (Boeck.) C.B.Cl. (Hb.LMH.S.MbMz)
,, mundii Nees (Hb.H.S.Mb)
,, oakfortensis C.B.Cl. (Hb.H.S.Mb)
,, polystachyus Beauv. (Hb.LMH.MbMzHl)
,, sp. (C.27147) (Hb.LH.S.MbMz)

459C. Mariscus capensis Schrad. (Hb.LMH.RS.MbSgHl)
,, congestus C.B.Cl. (Hb.L.S.Mz)

Mariscus dregeanus Kunth (Hb.LMH.RBS.MbMkSgHl)
,, indecorus (Kunth) Podlech var. decurvatus (C.B.Cl.) Podlech (Hb.L.B.Mz)
,, riparius Schrad (Hb.L.S.Mz)
,, sieberianus Nees (Hb.LMH.FB.MbHlPp)

462. Kyllinga alba Nees (Hb.H.S.MbHl)
,, melanosperma Nees (Hb.LMH.S.MbMzMk)

465. Ficinia ? bergiana Kunth (Hb.H.G.Mb)
,, brevifolia Nees (Hb.H.S.Mb)

467. Fuirena chlorocarpa Ridley (Hb.H.S.Mb)
,, pachyrrhiza Ridley (Hb.LMH.SF.MbMz)
,, pubescens Kunth (Hb.LMH.BS.Mb)

468. Scirpus corymbosus Roth. (Hb.MH.S.MbMkPp)
,, costatus Boeck. (Hb.H.S.Mb)
,, fluitans L. (Hb.H.S.MbPp)
,, macer Boeck. (Hb.H.S.Mb)

469. Eleocharis palustris R.Br. (Hb.H.S.Mb)

471. Fimbristylis capillaris var. trifida (Nees) Koyama (Hb.H.S.Mb)
,, dichotoma (L.) Vahl (Hb.LMH.S.MbMz)
,, ferruginea (L.) Vahl. (Hb.L.S.Mz)
,, monostachya Hassk. (Hb.H.G.Mb)

471A. Bulbostylis burchellii C.B.Cl. (Hb.LMH.G.MzHl)
,, contexta (Nees) Bodard (Hb.L.G.Mz)
,, oritrephes (Ridl.) C.B.Cl. (Hb.H.G.Mb)
,, ? contexta × oritrephes (Hb.MH.GR.MbSg)

482. Costularia natalensis C.B.Cl. (Hb.H.G.MbPp)

492. Rhynchospora glauca Vahl (Hb.H.S.Mb)

512. Coleochloa setifera (Ridley) Gilly (Hb.H.R.Mb)

515. Scleria hirtella Swartz (Hb.H.S.Mb)
,, melanomphala Kunth (Hb.MH.SF.Mb)
,, natalensis C.B.Cl. (Hb.H.SR.Mb)
,, woodii C.B.Cl. (Hb.M.S.Mb)
,, sp. (C.32221) (Hb.M.F.Mb)

521. Schoenoxiphium caricoides C.B.Cl. (Hb.MH.G.MbMzPp)
,, lanceum (Thbg) Kuek. (Hb.H.S.Mb)
,, aff. rufum Nees (Hb.H.S.Mb)
,, sparteum Kuek. (Hb.MH.SFG.MbHl)
,, ,, ,, var. schimperianum (Boeck.) Kuek. (Hb.H.F.MbHl)

522. Kobresia rufa (Nees) Koyama (Hb.H.G.Mb)

525. Carex cernua Boott. (Hb.H.S.Mb)
,, spicato-paniculata C.B.Cl. (Hb.MH.SFG.MbPp)

Palmae

528. Phoenix reclinata Jacq. (T.LM.SB.SgHl)

Araceae

693. Gonatopus boivinii (Dcne) Engl. (Hb.L.F.SgMz)

748. Zantedeschia aethiopica (L.) Spreng. (Hb.H.G.Mb)
,, melanoleuca Hook.f. var. tropicalis N.E.Br. (Hb.H.RF.Mb)
,, oculata (Lindl.) Engl. (Hb.H.RS.Mb)
,, rehmannii N.E.Br. (Hb.H.RG.MbHl)

764. Stylochiton natalense Schott. (Hb.L.B.SgHl)
,, sp. (C.26236) (Hb.H.G.MbHl)

RESTIONACEAE

804. Restio sieberi Kunth var. schoenoides Pillans (Hb.H.G.Mb)

XYRIDACEAE

826. Xyris capensis Thbg. var. medullosa N.E.Br. (Hb.H.S.Mb)
,, rehmannii Nilss. (Hb.H.S.Mb)
,, udotea Malme (Hb.H.S.Mb)
,, cf. umbilonis Nilss. (Hb.H.S.Mb)

ERIOCAULONACEAE

828. Eriocaulon abyssinicum Hochst. (Hb.H.S.Mb)
,, baurii N.E.Br. (Hb.H.S.Mb)
,, dregei Hochst. (Hb.H.S.Mb)
,, ruhlandii Schinz (Hb.M.RS.Mk)
,, sonderianum Koern (Hb.H.S.Mb)

COMMELINACEAE

896. Commelina africana L. (Hb.LMH.GBR.MbMkSgHl)
,, albescens Hassk. (Hb.LMH.R.MbSg)
,, benghalensis L. (Hb.LMH.FGB.MbMkSgHl)
,, eckloniana Kunth (Hb.MH.B.G.MbSgHl)
,, karooica C.B.Cl. (Hb.H.G.Mb)
,, subulata Roth (Hb.MH.R.MbSg)
899. Aneilema aequinoctiale Kunth (Hb.H.F.Mb)
,, dregeana Kunth (Hb.LMH.FR.MkSgHlPp)
,, hockii de Wild (Hb.M.B.Sg)
,, sp. (Murdoch 89) (Hb.L.S.Hl)
899A. Murdannia simplex (Vahl) Brenan (Hb.L.B.Sg)
904. Cyanotis lanata Benth. (Hb.L.B.Mk)
,, lapidosus Phillips (HbSuc.MH.R.MbSg).
,, nodiflora Kunth (Hb.MH.G.MbMkSgHlPp)
908. Floscopa glomerata Hassk. (Hb.MH.S.MbPp)

JUNCACEAE

936. Juncus lomatophyllus Spreng. (Hb.H.S.Mb)
,, nr. oxycarpus E.Mey. (Hb.H.S.Mb)
,, rostratus Burch. (Hb.H.S.Mb)

LILIACEAE

963. Gloriosa superba L. (Bb.LM.B.SgPp)
964. Littonia modesta Hook. (Bb.H.R.MbHl)
969. Androcymbium striatum Hochst. (Bb.H.R.MbPp)
972. Wurmbea kraussii Baker (Bb.H.R.Mb)
985. Bulbine asphodeloides L. (Bb.LH.SR.MbMzHlPp)
,, stenophylla Verdoorn (Bb.LMH.S.MbMkSg)
,, sp. nov. (C.25640) (Bb.H.R.Mb)

989. Anthericum angulicaule Baker (Bb.LH.B.MbSgHl)
,, cooperi Baker (Bb. H.GS.MbMk)
,, fasciculatum Baker (Bb.H.R.Mb)
,, galpinii Baker (Bb.LMH.G.MbMkSg)
,, haygarthii (Wood & Evans) Kies ex Oberm. (Bb.H.S.Mb)
,, transvaalense Baker (Bb.M.R.Sg)

989A. Trachyandra asperata Kunth (Bb.L.B.MbHl)
,, ,, ,, var. swaziensis Oberm. (Bb.H.G.Mb)
,, macowanii Baker var. nataglencoense O.K. (Bb.H.S.MbMk)
,, reflexipilosa (O.K.) Obermeyer (Bb.LMH.GBS.MbMk)
,, saltii (Baker) Obermeyer var. secunda Obermeyer (Bb.LMH.GB.Hl)

990. Chlorophytum bowkeri Baker (Bb.LH.BR.MbMkMzSgHl)
,, comosum (Thbg) Baker (Bb.LM.B.Sg)
,, krookianum Zahlbr. (Bb.H.GR.MbSgHlPp)

1010. Schizobasis angolensis Baker (Bb.M.R.Hl)
,, cuscutoides Benth. (Bb.L.B.Pp)

1011. Bowiea volubilis Harv. (BbSuc.H.R.Hl)

1012. Eriospermum abyssinicum Baker (Bb.H.G.Pp)
,, burchellii Baker (Bb.H.R.Mb)
,, cooperi Baker (Bb.MH.S.MbMkHlPp)
,, galpinii Schinz (Bb.LM.B.MzMkSg)
,, luteo-rubrum Baker (Bb.H.G.Mb)
,, porphyrovalve Baker (Bb.H.R.Mb)
,, tenellum Baker (Bb.H.R.Mb)

1024. Kniphofia fusca L. E. Codd Ms. (Bb.H.S.Mb)
,, linearifolia Baker (Bb.H.G.MbPp)
,, multiflora Baker (Bb.M.S.Mz)
,, porphyrantha Baker (Bb.H.GS.MbPp)
,, splendida E. A. Bruce (Bb.H.G.Hl)

1026. Aloe affinis Berger (Suc.H.F.Pp)
,, albida (Stapf) Reynolds (Suc.H.R.Pp)
,, arborescens Mill. (SucSb.MH.R.MbHl)
,, bainesii Thiselton-Dyer (SucT.H.G.Hl)
,, boylei Baker (Suc.H.G.Mb)
,, chabaudii Schönl. (Suc.L.B.MzSg)
,, chortolirioides Berger (Suc.H.R.MbPp)
,, ,, ,, var. boastii (Letty) Reynolds (Suc.H.R.Mb)
,, cooperi Baker (Suc.LMH.G.MbMzSg)
,, cryptopoda Baker (Suc.M.R.Sg)
,, dewetii Reynolds (Suc.H.G.MkHl)
,, dyeri Schönl. (Suc.L.B.MbPp)
,, hlangapies Groenwald (Suc.H.G.Hl)
,, integra Reynolds (Suc.H.G.MbMk)
,, keithii Reynolds (Suc.M.G.Sg)
,, kniphofioides Baker (SucBb.H.G.MbMk)
,, marlothii Berger (SucT.LM.GB.MbMkHl)
,, minima Baker (Suc.H.G.MbMkHl)
,, parvibracteata Schönl. (Suc.L.B.MzMkSgHl)
,, rupestris Baker (SucT.L.R.SgHl)
,, saponaria (Ait.) Harv. var. (Suc.LMH.B.Mb)

Aloe sessiliflora Pole-Evans (Suc.LM.R.Sg)
,, suprafoliata Pole-Evans (Suc.H.R.Mb)
,, vanbalenii Pillans (Suc.M.R.Hl)
,, sp. (C.29000) (Suc.L.B.Mz)

1027. Gasteria sp. (Suc.L.B.Sg)

1029. Haworthia limifolia Marloth sens. lat. (Suc.L.B.SgHl)

1029A. Chortolirion stenophyllum (Baker) Berg. (Bb.H.G.Mk)

1046. Agapanthus caulescens Sprenger ssp. caulescens (Bb.H.R.Mb)
,, ,, ,, ssp. angustifolius Leighton (Bb.H.R.Mb)
,, inapertus Beauv. ssp. intermedius Leighton (Bb.MH.GR.MbMzMkSgPp)

1047. Tulbaghia acutiloba Harv. (Bb.LMH.GSR.MbMzSg)
,, alliacea L.f. var. ludwigiana Harv. (Bb.MH.GS.MbHl)

1079. Albuca bainesii Baker (Bb.LM.B.MzSgHl)
,, cf. crinifolia Baker (Bb.H.R.Hl)
,, fastigiata Dryand. (Bb.H.S.Mb)
,, pachychlamys Baker (Bb.MH.R.MbSg)
,, nr. retusa Jacq. (Bb.H.GS.Mb)
,, cf. setosa Jacq. (Bb.H.G.Mb)

1080. Urginea delagoense Baker (Bb.L.B.MbHl)
,, depressa Baker (Bb.H.G.Mb)
,, epigea R. A. Dyer (Bb.L.B.Hl)
,, lydenburgensis R. A. Dyer (Bb.L.B.SgHl)
,, rubella Baker (Bb.H.R.Mb)
,, cf. tenella Baker (Bb.H.R.Mb)
,, sp. (Dlamini s.n.) (Bb.M.G.Sg)

1082. Drimia alta R. A. Dyer (Bb.LMH.R.Mb)
,, anomala Benth. (Bb.H.R.Mb)
,, elata Jacq. (Bb.H.G.Mb)
,, neriniformis Baker (Bb.H.S.Mb)
,, sp. (C.27403) (Bb.H.G.Mb)

1084. Dipcadi gracillimum Baker (Bb.H.GR.Mb)
,, marlothii Engl. (Bb.LMH.G.MbMz)
,, rigidifolium Baker (Bb.H.G.Mb)
,, viride (L.f.) Moench (Bb.MH.GS.MbHl)

1086. Scilla asperifolia F. v.d. Merwe (Bb.MH.G.MbMz)
,, cooperi Hook.f. (Bb.H.S.Mb)
,, diphylla Baker (Bb.H.S.Mb)
,, glaucescens v.d. Merwe (Bb.H.R.Mb)
,, macowanii Baker (Bb.L.R.Mb)
,, marginata Baker (Bb.LM.B.MkMzSgHl)
,, megaphylla Baker (Bb.LM.B.MbMzSg)
,, minima Baker (Bb.H.R.Mb)
,, natalensis Planch. (Bb.H.GR.MbHlPp)
,, ovatifolia Baker (Bb.MH.R.MbMk)
,, polyantha Baker var. angustifolia Baker (Bb.LMH.BG.MbMkMzSgHl)
,, sandersonii Baker (Bb.H.S.Mb)

1086A. Schizocarpus nervosus (Burch.) F. v.d. Merwe (Bb.MH.G.MbSgPp)

1086B. Resnova transvaalensis F. v.d. Merwe (Bb.MH.R.MbMk)

1088. Eucomis humilis Baker (Bb.H.R.MkHl)
,, pole-evansii N.E.Br. (Bb.H.S.MbMk)

Eucomis undulata Ait. (Bb.H.GR.MbMk)
,, sp. (C.29398) (Bb.H.R.Pp)

1089. Ornithogalum nr. capillare (Bb.H.G.Mb)
,, caudatum Jacq. (Bb.MH.FR.MbHl)
,, inconspicuum Baker (Bb.H.S.Mb)
,, oliganthum Baker (Bb.H.R.Mb)
,, pretoriense Baker (Bb.L.B.MbSg)
,, saundersiae Baker (Bb.M.B.Mz)
,, setifolium Kunth (Bb.LH.R.Mb)
,, zeyheri Baker (Bb.L.S.MbMk)

1090. Drimiopsis maculata Lindl. (Bb.L.B.MzSg)

1109. Dracaena hookeriana C. Kock (T.H.F.MbHl)

1110. Sanseviera deserti N.E.Br. (Bb.L.B.MzSg)
,, thyrsiflora Thbg. (Bb.L.B.MbHl)

1113. Asparagus aethiopicus L. var. natalensis Bak. (C.L.B.Hl)
,, ,, var. nov. (C.28002) (C.LH.R.MbMz)
,, africanus Lam. (C.LMH.FBR.MbMzSgHl)
,, asparagoides (L.) Wight (C.H.F.MbHl)
,, falcatus L. (C.L.B.Sg)
,, minutiflorus (Kunth) Bak. (Hb.L.B.Sg)
,, plumosus L. (C.LMH.FR.MbHl)
,, racemosus Willd. (C.L.B.Hl)
,, ramosissimus Bak. (C.H.F.Mb)
,, saundersiae Bak. (C.L.B.Sg)
,, suaveolens Burch. (Hb.L.B.Hl)
,, subulatus Thbg (C.M.B.Sg)
,, virgatus Bak. (Hb.LMH.R.MbSg)
,, zuluensis N.E.Br. (Hb.H.R.Hl)

1147. Behnia reticulata Didrichs (C.H.F.MbPp)

1151. Smilax kraussiana Meissn. (C.LMH.BF.MbSgPp)

Amaryllidaceae

1167. Haemanthus hirsutus Baker (Bb.H.GR.MbSg)
,, magnificus Herb. (Bb.MH.GR.MbMkHl)
,, multiflorus Mast. (Bb.LM.B.SgHl)

1168. Boophane disticha Herb. (Bb.MH.G.MbSg)

1170. Clivia caulescens R. A. Dyer (Bb.H.F.Pp)
,, gardenii Hook. (Bb.H.FR.Mb)
,, *miniata (Hook.) Regel

1175. Nerine angustifolia Baker (Bb.H.S.Mb)
,, rehmannii (Baker) L.Bolus (Bb.H.R.Mb)

1177. Brunsvigia natalensis Baker (Bb.H.S.Mb)
,, radulosa Burch. (Bb.H.G.MbHl)

1179. Anoiganthus breviflorus Baker (Bb.MH.S.MbMz)

1187. Apodolirion buchananii Baker (Bb.H.G.MbPp)

1189. Crinum bulbispermum (Burm.f.) Milne-Redhead & Schweickerdt (Bb.L.B.MkSg)
,, graminicolum Verdoorn (Bb.H.G.Hl)
,, macowanii Baker (Bb.LMH.S.MbMkMzSgHl)

1190. Ammocharis coranica (Ker-Gawl.) Herb. (Bb.L.B.SgHl)

1191. Cyrtanthus bicolor R. A. Dyer (Bb.H.G.Mb)
,, galpinii Baker (Bb.L.B.MzHlPp)
,, nutans R. A. Dyer (Bb.H.G.MbPp)
,, stenanthus Baker var. major R. A. Dyer (Bb.H.G.Mb)
,, tuckii Baker var. transvaalensis Verdoorn (Bb.H.G.MbMk)
1229a. Empodium plicatum (L.f.) Baker (Bb.H.G.MbHl)
,, sp. (C.32212) (Bb.H.G.Mb)
1230. Hypoxis acuminata Baker (Bb.H.S.Mb)
,, angustifolia Lam. (Bb.H.R.Mb)
,, argentea Harv. (Bb.H.G.Hl)
,, filiformis Baker (Bb.MH.GSR.MbSg)
,, galpinii Baker (Bb.MH.G.Mb)
,, gerrardii Baker (Bb.H.S.Mb)
,, membranacea Baker (Bb.H.R.Mb)
,, multiceps Buch. (Bb.LMH.G.MbMzPp)
,, ? multiceps Buch. × rigidula Baker (Bb.H.G.Mb)
,, nitida Verdoorn (Bb.M.G.Hl)
,, parviflora Baker (Bb.H.R.Mb)
,, rigidula Baker (Bb.MH.G.MbMzHl)
,, rooperi Moore (Bb.L.B.MzSg)
1230B. Rhodohypoxis baurii (Baker) Nel (Bb.H.R.Mb)

Velloziaceae

1246. Vellozia clavata Baker (Sb.H.R.Mb)
,, equisetoides Baker (Sb.LM.B.MbPp)
,, humilis Baker (Hb.H.R.Mb)

Dioscoreaceae

1252. Dioscorea cotinifolia Kunth (C.LMH.BS.MbMzSg)
,, dregeana (Kunth) Dur. & Schinz var. hutchinsonii Burkill (C.MH.B.MbSg Hl)
,, quartiniana A. Rich. (C.H.G.Hl)
,, rupicola Kunth (C.H.S.Mk)
,, sylvatica Eckl. (CBb.MH.FR.MbHl)

Iridaceae

1265. Moraea galpinii N.E.Br. (Bb.H.G.MbMk)
,, ? moggii N.E.Br. (Bb.H.GS.Mb)
,, pubiflora N.E.Br. (Bb.H.GS.MbMkHlPp)
,, spathulata Klatt (Bb.H.G.Mb)
,, stewartiae N.E.Br. (Bb.H.G.MbHl)
,, tenuis Ker (Bb.H.S.Mb)
,, sp. (Murdoch 91) (Bb.M.G.Mz)
1265A. Dietes vegeta (L.) N.E.Br. (Bb.LMH.BF.MbSgHlPp)
1295. Aristea cognata N.E.Br. (Bb.L.G.Hl)
,, ecklonii Baker (Bb.H.F.Pp)
,, woodii N.E.Br. (Bb.H.G.MbMkHlPp)
1299 Schizostylis coccinea Backhouse & Harv. (Bb.H.S.Mb)
1301. Hesperantha baurii Baker (Bb.H.GS.Mb)
,, lactea Baker (Bb.H.S.Mb)

1303. Dierama elatum N.E.Br. (Bb.H.G.MkHl)
„ galpinii N.E.Br. (Bb.H.G.Mb)
„ ? igneum Klatt (Bb.M.G.Mb)
„ medium N.E.Br. var. mossii N.E.Br. (Bb.H.S.Mb)
„ pictum N.E.Br. (Bb.H.G.MbMk)
„ robustum N.E.Br. (Bb.H.G.MbMkPp)
1306. Crocosmia aurea Planch. (Bb.H.F.MbPp)
1311. Gladiolus aurantiacus Klatt (Bb.H.G.Mk)
„ crassifolius Baker sens. lat. (Bb.LMH.GB.MbMkMzSgHl)
„ ecklonii Lehm. (Bb.H.G.MbHl)
„ edulis Burch. (Bb.MH.G.MbSg)
„ ludwigii Pappe (Bb.H.G.Hl)
„ „ „ var. calvatus Baker (Bb.H.G.Hl)
„ ? paludosus Baker (Bb.L.B.Sg)
„ papilio Hook.f. (Bb.H.S.Mb)
„ praelongitubus Lewis (Bb.H.GR.Mb)
„ psittacinus Hook. var. cooperi Baker (Bb.L.S.Sg)
„ ? varius Bol.f. var. elatus (Bb.LMH.BG.MbPp)
„ woodii Baker (Bb.MH.G.MbMkHl)
„ sp. nov. (Reynolds 8559) (Bb.H.G.Pp)
„ sp. (C.25663) (Bb.H.G.MbPp)
1311D. Radinosiphon leptostachya (Baker) N.E.Br. (Bb.H.R.MbPp)
1312B. Curtonus paniculatus N.E.Br. (Bb.H.S.MbPp)
1314. Lapeirousia laxa (Thbg) N.E.Br. (Bb.LMH.R.MbMkMzSgHl)
„ grandiflora Baker (Bb.L.B.Hl)
1315. Watsonia densiflora Baker sens. lat. (Bb.H.G.MbMkHl)
„ latifolia Obermeyer (Bb.H.G.Mb)
„ watsonioides (Baker) Obermeyer (Bb.H.G.MbMkHl)

Musaceae

1319. Strelitzia caudata R. A. Dyer (T.H.GFR.Mb)

Zingiberaceae

1346. Kaempferia aethiopica (Schweinf.) Solms-Laub. (Bb.L.B.Mz)

Orchidaceae

1407. Stenoglottis fimbriata Lindl. (BbE.MH.F.MbHlSg)
1421. Cynorchis kassneriana Kränzl (Bb.H.F.Mb)
1422. Habenaria bicolor Conn. & Kränzl (Bb.M.G.Mb)
„ caffra Schltr (Bb.H.G.MbMkSg)
„ ciliosa Lindl. (Bb.H.G.Mk)
„ clavata Rchb.f. (Bb.H.G.MbMkHl)
„ cornuta Lindl. (Bb.H.S.Mb)
„ culveri Schltr (Bb.L.B.Hl)
„ dives Rchb.f. (Bb.H.GS.Mb)
„ dregeana Lindl. (Bb.H.G.Mb)
„ epipactidea Rchb.f. (Bb.H.G.Hl)
„ malacophylla Rchb.f. (Bb.H.F.Mb)
„ natalensis Rchb.f. (Bb.H.S.Mb)
„ transvaalensis Schltr (Bb.M.G.Mz)

1422B. Bonatea ? porrecta (Bolus) Summerhayes (Bb.M.B.MkHl)
1428. Brachycorythis ovata Lindl. (Bb.H.G.Mb)
,, pubescens Harv. (Bb.LMH.G.MbMkMzHl)
1429. Neobolusia tysonii Schltr (Bb.H.S.Mb)
1430. Satyrium atherstonii Rchb.f. (Bb.H.S.Mb)
,, cristatum Sond. (Bb.H.GS.MbHl)
,, longicauda Lindl. (Bb.H.G.MbPp)
,, macrophyllum Lindl. (Bb.H.G.Mb)
,, neglectum Schltr (Bb.H.S.Mb)
,, ocellatum Bolus (Bb.H.S.Mb)
,, parviflorum Sw. (Bb.H.GS.Mb)
1431. Schizochilus bulbinella Bolus (Bb.H.R.Mb)
,, strictus Rolfe (Bb.H.S.Mb)
,, ? zeyheri Sond. (Bb.H.R.Mb)
1433. Brownleea caerulea Harv. (Bb.H.F.Mb)
,, parviflora Harv. (Bb.H.G.Mb)
1434. Disa macowanii Rchb.f. (Bb.H.S.Mb)
,, nervosa Lindl. (Bb.H.G.Mb)
,, patula Sond. var. transvaalensis Summerhayes (Bb.H.G.MbPp)
,, polygonoides Lindl. (Bb.H.S.Mb)
,, saxicola Schltr (Bb.H.R.Mb)
,, stachyoides Rchb.f. (Bb.H.G.MbPp)
1435. Herschelia baurii Kränzl (Bb.H.G.MbPp)
1436. Monadenia brevicornis Lindl. (Bb.H.G.Pp)
1437. Disperis fanniniae Harv. (Bb.H.F.MbPp)
,, lindleyana Rchb.f. (Bb.H.F.Mb)
,, micrantha Lindl. (Bb.H.F.Mb)
,, tysonii Bolus (Bb.H.S.Mb)
1440. Corycium nigrescens Sond. (Bb.H.G.Mb)
1556. Liparis neglecta Schltr (Bb.H.F.MbHl)
1565. Polystachya albescens Ridl. ssp. imbricata (Rolfe) Summerh. (BbE.H.F.Mb)
,, fasciata Lindl. (BbE.M.F.Mb)
,, gerrardii Harv. (BbE.H.E.Hl)
,, ottoniana Rchb.f. (BbE.H.FR.MbHl)
,, pubescens Rchb.f. (BbE.H.F.Mb)
,, transvaalensis Schltr (BbE.MH.F.MbHlPp)
,, zuluensis L.Bolus (Bb.H.R.Mb)
1568. Ansellia gigantea Rchb.f. (BbE.L.B.MzSgPp)
1631. Calanthe natalensis Rchb.f. (Bb.H.F.Mb)
1648. Eulophia aculeata (L.f.) Spreng. ssp. huttonii (Rolfe) Hall (Bb.H.G.Mb)
,, chlorantha Schltr (Bb.H.R.Mb)
,, clavicornis Lindl. var. clavicornis (Bb.H.G.MbMk)
,, ,, ,, var. nutans (Sond.) Hall (Bb.H.GS.MbMkHl)
,, ensata Lindl. (Bb.MH.G.MbMzHl)
,, foliosa Bolus (Bb.H.G.Mb)
,, leontoglossa Rchb.f. (Bb.H.G.Mb)
,, odontoglossa Rchb.f. (Bb.MH.G.MbHl)
,, ovalis Lindl. ssp. bainesii (Rolfe) Hall (Bb.H.G.MbHl)
,, ,, ,, ssp. ovalis (Bb.H.G.Mk)
,, parviflora (Lindl.) Hall (Bb.H.G.Mb)

Eulophia parvilabris Lindl. (Bb.H.G.MbHl)
„ petersii Rchb.f. (Bb.L.R.Mb)
„ porphyroglossa (Rchb.f.) Bolus (Bb.L.F.Mb)
„ speciosa (R.Br.) Bolus (Bb.L.B.Hl)
„ streptopetala Lindl. (Bb.LMH.BG.MbMzSgPp)
„ welwitschii (Rchb.f.) Rolfe (Bb.H.G.Mb)
„ sp. (C.26091) (Bb.H.G.Mb)
„ sp. (C.26189) (Bb.H.G.Mb)

1707. Megaclinium sandersonii Oliv. (BbE.H.R.Mb)
1824. Acampe pachyglossa Rchb.f. (E.L.B.Sg)
1828. Angraecum pusillum Lindl. (E.H.F.Mb)
„ sacciferum Lindl. (E.H.F.Mb)
1828A. Tridactyle bicaudata (Lindl.) Schltr (E.H.F.Hl)
„ tricuspe Bolus (E.H.F.MbMkHl)
1835. Listrostachys arcuata Rchb.f. (E.L.B.SgHl)
1837. Mystacidium capense (L.f.) Schltr (E.LMH.B.MbMkHl)
„ flanaganii Bolus (E.H.F.Pp)
„ venosum Harv. ex Rolfe (E.H.F.Mb)

Piperaceae

1862. Piper capense L. (Sb.H.F. MbPp)
1866. Peperomia arabica Decne (Suc.L.F.MbSg)
„ reflexa (L.f.) Dietr. (Suc.E.H.F.Mb)
„ retusa (L.f.) Dietr. (Suc.E.H.F.Mb)

Salicaceae

1873. Salix woodii Seem. (T.LMH.S.MbMkMzSgHl)

Myricaceae

1874. Myrica brevifolia E. Mey (Sb.H.G.Mb)
„ pilulifera Rendle (TSb.H.G.MbPp)

Ulmaceae

1902. Trema orientalis (L) Blume (T.H.F.MbHlPp)
1906. Chaetachme aristata Planch. (Sb.L.B.Sg)

Moraceae

1961. Ficus brachylepis Welw. ex Hiern (T.L.B.Mz)
„ capensis Thbg (T.LMH.B.MbMzHl)
„ capreaefolia Del. (Sb.L.B.Hl)
„ ingens Miq. (T.LMH.GR.MbMzMkSgPp)
„ petersii Warb. (T.LMH.BG.MbMkMzSgHlPp)
„ soldanella Warb. (T.L.R.MzSgHl)
„ sonderi Miq. (T.LMH.BG.MbMkMzSg)
„ stuhlmannii Warb. (T.L.B.Hl)
„ sycomorus L. (T.LM.B.MzSgHl)
„ sp. (C.29565) (T.L.B.Sg)

Urticaceae

1978. Urera tenax N.E.Br. (Sb.H.GR.MbHl)
1982. Fleurya mitis Wedd. (Hb.H.F.Mb)

1983. Girardinia condensata Wedd. (Hb.H.F.Mb)
1992. Pouzolzia hypoleuca Wedd. (Sb.L.B.MzHl)
„ parasitica Schweinf. (Sb.H.G.Mb)
2014. Australina acuminata Wedd. (Hb.H.G.Mb)

PROTEACEAE

2034. Faurea galpinii Phillips (T.H.F.Pp)
„ saligna Harv. (T.M.B.Sg)
„ speciosa Welw. (T.LMH.BG.MbMkMz)
2035. Protea gaguedi Gmel. (Sb.MH.G.MbMkHl)
„ multibracteata Phillips (Sb.M.B.Sg)
„ rhodantha Hook.f. (Sb.H.G.MbPp)
„ roupelliae Meissn. (T.H.G.Mb)
„ simplex Phillips (Sb.H.R.Mb)
„ sp. (McCall s.n.) (Sb.H.G.Mb)
„ sp. (C.31589) (Sb.H.G.Mb)
2036. Leucospermum gerrardii Stapf (Sb.H.R.MbPp)

LORANTHACEAE

2074. Loranthus dregei E. & Z. (P.L.B.MzSgPp)
„ galpinii Schinz (P.L.B.Mz)
„ kalachariensis Schinz (P.L.B.Sg)
„ kraussianus Meissn. (P.L.B.Sg)
„ minor (Harv.) Sprague (P.L.B.Hl)
„ rubromarginatus Engl. (P.MH.B.MkHl)
„ zeyheri Harv. (P.LM.B.MzSgHl)
2093. Viscum cf. eucleae E. & Z. (P.MH.G.MbSgHl)
„ rotundifolium L.f. (P.L.B.SgHl)
„ subserratum Schltr (P.H.G.Mk)
„ verrucosum Harv. (P.L.B.SgHl)

SANTALACEAE

2108. Osyris lanceolata Hochst. & Steud. (Sb.LM.B.Mb)
2116. Osyridocarpus schimperianus (Hochst. ex A. Rich) A.DC (Sb.L.B.Sg)
2118. Thesium asterias A. W. Hill (Hb.H.G.MbPp)
„ burkei A. W. Hill (Hb.H.G.Hl)
„ costatum A. W. Hill (Hb.MH.G.MbMk)
„ „ „ var. paniculatum N.E.Br. (Hb.H.G.Mb)
„ goetzianum Engl. (Hb.M.G.Hl)
„ gracilarioides A. W. Hill (Hb.H.G.MbPp)
„ gracilentum N.E.Br. (Hb.H.G.Pp)
„ gypsophiloides A. W. Hill (Hb.H.G.Mb)
„ ? nigrum A. W. Hill (Hb.H.G.Mb)
„ procerum N.E.Br. (Hb.L.B.Sg)
„ racemosum Bernh. (Hb.LH.G.MbMkPp)
„ resedoides A. W. Hill (Hb.L.B.MzSgHl)
„ triflorum Thbg (Hb.L.B.Sg)
„ utile A. W. Hill (Sb.L.B.MkMzSg)
„ sp. (C.25380) (Hb.H.G.Mb)
„ sp. (C.26069) (Hb.H.G.Mb)

Olacaceae

2131. Olax dissitiflora Oliv. (T.L.B.SgHl)
2136. Ximenia americana L. (Sb.L.B.Sg)
,, caffra Sond. var. natalensis Sond. (Sb.LM.B.MzSgHlPp)

Hydnoraceae

2182. Hydnora solmsiana Dinter (P.M.B.Mz)

Polygonaceae

2195. Rumex sagittatus Thbg (C.H.F.MbHl)
,, woodii N.E.Br. (Hb.LMH.BG.MbMk)
2201. Polygonum lapathifolium L. var. maculatum Dyer & Trim. (Hb.H.S.Mb)
,, serrulatum Lag. (Hb.MH.S.MbMzMk)
2204. Oxygonum dregeanum Meissn. (Hb.H.G.MbPp)
,, ,, ,, var. canescens (Sond.) R. Graham (Hb.L.B.Sg)
,, ,, ,, var. swazicum Burtt Davy (Hb.H.G.Mb)

Amarantaceae

2292. Celosia trigyna L. (Hb.H.G.HlPp)
2293. Hermbstaedtia odorata (Burch.) T. Cooke (Hb.L.B.Hl)
2299. Amaranthus hybridus L. (W)
,, thunbergii Moq. (W)
2309. Cyphocarpa angustifolia (Moq.) Lopr. (Hb.L.B.MzSgHl)
2311. Centema subfusca (Moq.) Lopr. (Hb.L.B.Sg)
2312. Cyathula cylindrica Moq. (Hb.H.R.MbHl)
,, uncinulata (Schrad.) Schinz (Hb.H.G.MkHl)
2314. Pupalia lappacea (L.) Juss. (Hb.LMH.B.MzHl)
2328. Achyranthes argentea Lam. (Hb.H.F.Mb)
,, aspera L. (Hb.LMH.FS.MkMzHl)
2328A. Achyropsis leptostachya Hook.f. (Hb.L.B.Mz)
2335. Alternanthera pungens H.B.K. (W)
2338. Gomphrena celosioides Mast. (W)

Nyctaginaceae

2347A. Commicarpus africanus (Lour.) Cuf. (Hb.L.B.Hl)
,, pentandrus (Burch.) Heim. (W.L.B.Hl)
2349. Boerhaavia diffusa L. var. hirsuta Heim. (Hb.L.B.Hl)

Phytolaccaceae

2379. Psammotropha myriantha Sond. (Hb.H.R.MbPp)
2382. Gisekia africana (Lour.) Kuntze var. africana (Hb.L.B.Hl)

Aizoaceae

2390. Hypertelis salsoloides (Burch.) Adamson (W.L.B.Hl)
2393. Corbichonia decumbens (Forsk.) Exell (Hb.L.B.Hl)
2395. *Trianthema pentandra L. (Hb.L.B.)
2401. Aizoon glinoides L.f. (W.L.B.MzHl)
2405. Aptenia cordifolia (L.f.) Schwantes (Suc.L.B.Hl)

2405A. Delosperma cooperi (Hook.f.) L.Bol. (Suc.H.R.Mk)
„ herbeum N.E.Br. (Suc.L.B.Sg)
„ pachyrrhizum L.Bol. (Suc.L.B.Sg)
„ sutherlandii (Hook.f.) N.E.Br. (Suc.H.G.Mb)
„ tradescantioides (Berg.) L.Bol. (Suc.L.B.SgHl)

PORTULACACEAE

2406. Talinum caffrum (Thbg) E. & Z. (Hb.L.B.HlSg)
„ ? transvaalense v.Poellnitz (Suc.L.B.Sg)
2419. Portulacaria afra Jacq. (TSuc.LM.B.Hl)
2421. Portulaca quadrifida L. (Hb.L.B.Hl)

CARYOPHYLLACEAE

2430. Cerastium arabidis E. Mey. ex Fenzl (Hb.H.S.Mb)
2455. Polycarpaea corymbosa Lam. (Hb.L.B.Hl)
2467. Pollichia campestris Soland. (Hb.L.B.Hl)
2490. Silene burchellii Otth. (Hb.H.G.Mb)
„ capensis Otth. (Hb.H.G.MbHl)
„ undulata Ait. (Hb.H.S.Mb)
2502. Dianthus mooiensis Williams ssp. kirkii (Burtt Davy) Hooper (Hb.LM.B.Mb)

NYMPHAEACEAE

2513. Nymphaea capensis Thbg (A.L.S.SgHl)

RANUNCULACEAE

2541A. Knowltonia transvaalensis Szyszl. (Hb.H.G.Mb)
2542. Clematis brachiata Thbg (C.H.F.MbHlPp)
„ oweniae Harv. (C.H.G.MkHl)
2546. Ranunculus cooperi Oliv. (Hb.H.S.Mb)
„ multifidus Forsk. (Hb.H.S.Mb)
2548. Thalictrum rhynchocarpum Dill. & Rich. (Hb.H.F.Mb)

MENISPERMACEAE

2570. Cocculus hirsutus (L.) Diels (C.LM.B.MkMzSg)
2572. Stephania abyssinica (Dill. & Rich.) Walp. (C.H.FS.Mb)
2574. Cissampelos mucronata A. Rich (C.L.S.MzSgPp)
„ torulosa E. Mey. ex Harv. (C.H.F.MbHl)

ANNONACEAE

2691. Popowia caffra (Sond.) Benth. (T.LMH.F.SgHlPp)
2729. Annona senegalensis Pers. (T.LMH.B.MbHlPp)

MONIMIACEAE

2759A. Xymalos monospora Baill. (T.H.F.Mb)

LAURACEAE

2813. Cryptocarya liebertiana Engl. (T.H.F.Mb)
2825. Cassytha filiformis L. (CP.L.B.Sg)

CRUCIFERAE

2875. Heliophila rigidiuscula Sond. (Hb.H.S.MbHl)

Capparidaceae

3082. Cleome diandra Burch. (Hb.L.B.Hl)
„ macrophylla (Klotzsch) Briq. var. maculatiflora (Merxm.) Wild (Hb.L.B.Sg)
„ monophylla L. (Hb.MH.G.MbMzSg)
3099. Cladostemon kirkii (Oliv.) Pax & Gilg (T.L.B.SgHl)
3101. Capparis tomentosa Lam. (C.L.B.Mz)
„ transvaalensis Schinz (C.LMH.B.MzSgHl)
3106. Boscia albitrunca (Burch.) Gilg & Ben. (T.L.B.MzSg)
„ *rehmanniana Pest. (T.L.B.)
3108. Courbonia glauca (Kl.) Gilg & Ben. (Sb.L.B.Hl)
3109. Cadaba natalensis Sond. (C.L.B.MzSgHl)
3112. Maerua angolensis DC. (T.L.B.MzSgHl)
„ cafra (DC.) Pax (T.MH.F.MbSgHl)
„ mashonica Gilg (C.L.B.MzSgHl)
„ racemulosa (A.DC.) Gilg & Ben. (Sb.M.F.Sg)
„ rosmarinoides (Sond.) Gilg & Ben. (Sb.LM.B.MkMzSgHl)
„ sp. (C.30088) (Sb.L.B.SgHl)

Droseraceae

3136. Drosera burkeana Planch. (Hb.H.S.Mb)
„ collinsiae N.E.Br. (Hb.H.S.Mb)
„ madagascariensis DC. (Hb.H.S.Mb)

Crassulaceae

3164. Cotyledon wickensii Schönl. (Suc.L.B.Sg)
„ zuluensis Schönl. (Suc.L.B.Sg)
3166. Kalanchoe lanceolata (Forsk.) Pers. (Suc.L.B.Mz)
„ luciae Hamet (Suc.H.G.Hl)
„ paniculata Harv. (Suc.LM.B.MzSgHl)
„ ? rogersii Hamet (Suc.L.B.Hl)
„ rotundifolia Haw. (Suc.LMH.R.MbMkMzHl)
„ „ „ var. tripartita Hamet (Suc.L.B.Hl)
„ thyrsiflora Harv. (Suc.H.R.Mb)
„ sp. nov. (C.29407) (Suc.M.R.Hl)
„ sp. nov. (C.29471) (Suc.H.R.Pp)
„ sp. nov. (C.30437) (Suc.H.R.Mb)
3168. Crassula acinaciformis (Schinz) White (Suc.MH.G.MbHl)
„ argyrophylla Diels ex Schönl. & Bak.f. (Suc.MH.R.MbSg)
„ browniana Burtt Davy (Suc.MH.R.MbSgHl)
„ compacta Schönl. (Suc.H.R.Mb)
„ drakensbergensis Schönl. (Suc.H.G.Mb)
„ heterotricha Schinz (Suc.M.R.Sg)
„ latispatulata Schönl. (Suc.L.B.MzSg)
„ lineolata Dryand. (Suc.H.S.MbHl)
„ muscosa L. (Suc.H.R.Mb)
„ parvisepala Schönl. (Suc.Sb.H.R.MbPp)
„ rubicunda E. Mey ex Harv. (Suc.LMH.BRG.MbMkSgHlPp)
„ setulosa Harv. (Suc.H.R.Mb)
„ „ „ var. curta (N.E.Br.) Schönl. (Suc.H.R.Mb)
„ spectabilis Schönl. (Suc.H.GS.MbPp)

Crassula swaziensis Schönl. (Suc.M.G.Pp)
„ thorncroftii Burtt Davy (Suc.H.FS.MbHlPp)
„ transvaalensis (O.K.) K. Schum. (Suc.L.R.Sg)
„ vaginata E. & Z. (Suc.H.G.Mb)
„ sp. nov. sect. Vaginatae (Dlamini s.n.) (Suc.H.R.Mb)

SAXIFRAGACEAE

3241. Choristylis rhamnoides Harv. (Sb.H.GF.MbPp)

PITTOSPORACEAE

3252. Pittosporum viridiflorum Sims (T.MH.F.MbPp)

MYROTHAMNACEAE

3282. Myrothamnus flabellifolius (Sond.) Welw. (Sb.LMH.R.MbSg)

HAMAMELIDACEAE

3311. Trichocladus grandiflorus Oliv. (T.H.F.MbPp)

ROSACEAE

3353. Rubus *cuneifolius Pursch.
„ ? intercurrens C. E. Gust (SbW.H.G.Mb)
„ pinnatus Willd. (Sb.H.G.Mb)
„ *? rigidus Sm.
„ rosaefolius Sm. (SbW.H.F.Hl)
3375. Alchemilla elongata E. & Z. (Hb.H.S.Mb)
„ natalensis Engl. (Hb.M.S.Mb)
„ rehmannii Engl. (Hb.H.S.Mb)
3376. Agrimonia odorata Mill. (Hb.H.GS.MbHl)
3379. Leucosidea sericea E. & Z. (Sb.H.S.Mb)
3388. Cliffortia linearifolia E. & Z. (Sb.H.S.Mb)
„ repens Schltr (Sb.H.G.MbHlPp)
„ serpyllifolia Ch. & Sch. (Sb.H.S.Mb)
„ strobilifera Murray (Sb.MH.S.MbMz)
3393. Prunus africanus (Hook.f.) Kalkm. (T.H.F.MbPp)
3405. Parinari capensis Harv. (Sb.MH.R.MbMkPp)

CONNARACEAE

3428. Cnestis natalensis Planch. & Sond. (C.H.F.Pp)

LEGUMINOSAE

3443. Albizia *adiantifolia (Schumach.) W. F. Wight
„ anthelmintica (A. Rich) Brongn. (T.L.B.SgHl)
„ *harveyi Fourn. (T.L.B.Sg)
„ versicolor Welw. ex Oliv. (T.L.B.MkMzSgHlPp)
3446. Acacia ataxacantha DC. (T.LMH.B.MbMkSgHlPp)
„ borleae Burtt Davy (T.L.B.Sg)
„ brevispica Harms (T.LM.B.SgHl)
„ burkei Benth. (T.L.BS.MzSg)
„ caffra (Thbg) Willd. (T.LM.B.SgHl)
„ clavigera E. Mey. (T.L.BS.MzSgHl)
„ davyi N.E.Br. (T.LM.B.MkMzSgHlPp)

Acacia gerrardii Benth. (T.L.B.MzSgHl)
,, grandicornuta Gerstner (T.L.BS.SgHl)
,, karroo Hayne (T.LM.B.MzSg)
,, natalitia E. Mey. (T.LMH.BG.MbSg)
,, nigrescens Oliv. (T.L.B.MzSgHl)
,, nilotica (L.) Del. (T.LM.B.MzSgHl)
,, polyacantha Willd. ssp. campylacantha (Hochst. ex A. Rich) Brenan (T.LMH. BS.MkMzSg)
,, retinens Sim (T.L.B.SgHl)
,, senegal (L.) Willd. var. rostrata Brenan (T.L.B.SgHl)
,, sieberiana DC. var. woodii (Burtt Davy) Keay & Brenan (T.LM.B.MzPp)
,, swazica Burtt Davy (T.LM.B.MzSgHl)
,, tortilis (Forsk.) Hayne ssp. heteracantha (Burch.) Brenan (T.L.B.MzSgHl)
,, xanthophloea Benth. (T.L.S.SgHl)

3452. Dichrostachys cinerea (L.) Wight & Arn. (T.L.B.MzSgHl)
3467. Elephantorrhiza elephantina (Burch.) Skeels (Sb.MH.G.MbMk)
3468. Entada spicata (E. Mey.) Druce (Sb.H.G.Hl)
,, wahlbergii Harv. (Sb.L.B.Sg)
3471. *Erythrophleum suaveolens (Guill. & Perr.) Brenan (T.M.F.Sg)
3506. Schotia brachypetala Sond. (T.L.B.MzSgHl)
,, capitata Bolle (Sb.L.B.SgHl)
3509. Afzelia cuanzensis Welw. (T.M.F.Sg)
3528. Bauhinia fossoglensis Kotsch. (C.H.F.Pp)
,, galpinii N.E.Br. (C.LM.B.MbMkMzSgHl)
,, kirkii Oliv. (C.M.B.Sg)
,, *thonningii Schum. (Sb.L.B.)
3536. Cassia italica (Mill.) Lam. ex F. W. Andr. (Sb.L.M.MzHl)
,, mimosoides L. (Sb.LMH.BG.Mb)
,, nigrescens Vahl (Sb.L.B.Hl)
,, occidentalis L. (Sb.L.B.MzHlPp)
,, petersiana Bolle (T.L.B.SgPp)
,, sp. (Dlamini s.n.) (Sb.L.B.Hl)
3559. Caesalpinia decapetala (Roth.) Als. (W.MH.G.MbMzPp)
3561. Peltophorum africanum Sond. (T.LMH.BG.MkMzSgHl)
3573. Cordyla africana Lour. (T.L.B.Sg)
3607. Calpurnia floribunda Harv. (Sb.LMH.BG.MbMzHl)
,, subdecandra (L'Hérit.) Schweick. (T.MH.FB.MbSg)
,, sp. (C.24703) (T.L.B.Mz)
3607A. Bolusanthus speciosus (Bolus) Harms (T.L.B.MzSgHl)
3657. Lotononis corymbosa Benth. (Hb.MH.G.MbMzHl)
,, eriantha Benth. (Hb.H.G.Mb)
,, florifera Dümm. (Hb.M.G.Hl)
,, foliosa Bolus (Hb.H.G.Mb)
,, mucronata Conr. (Hb.H.R.Mb)
,, uniflora Kensit (Hb.L.B.MzSg)
,, sp. (C.28666) (Hb.H.G.Mk)
3657A. Pearsonia aristata (Schinz) Dümm. (Sb.H.G.MbPp)
,, atherstonei Dümm. (Sb.H.G.Mb)
,, filifolia (Bol.) Dümm. (Sb.H.G.Mb)
,, haygarthii (N.E.Br.) Dümm. (Sb.L.B.Hl)

Pearsonia marginata (Schinz) Dümm. (Sb.MH.G.MbMkPp)
„ ? marginata var. laxiflora (Sb.M.B.Mb)
„ multiflora (Schinz) Dümm. (Sb.H.G.MbHl)
„ podalyriaefolia Dümm. (Sb.H.G.MkPp)
„ ? sessilifolia (Harv.) Dümm. (Sb.H.G.MbHl)
„ ? swaziensis (Bol.) Dümm. (Sb.H.G.Mb)
„ sp. (C.25203) (Sb.H.G.Mb)
„ sp. (C.26496) (Sb.H.G.Mb)

3658. Listia heterophylla E. Mey. (Hb.L.B.Mz)

3664. Dichilus lebeckioides DC. (Sb.LMH.BG.MbMzSg)

3669. Crotalaria australis Bak.f. (Sb.L.B.Mz)
„ brachycarpa Burtt Davy (Hb.H.G.Mb)
„ burkeana Benth. (Sb.L.B.Mz)
„ capensis Jacq. (Sb.MH.BF.MbMzSg)
„ globifera E. Mey. (Sb.H.G.MbMkHl)
„ grantiana Harv. (Sb.LM.B.SgHl)
„ juncea L. (W.M.G.Hl)
„ lanceolata E. Mey. (Sb.MH.G.MbPp)
„ monteiroi Taub. ex Bak.f. var. galpinii Burtt Davy (Sb.L.B.Mz)
„ mucronata Desv. (Sb.MH.G.MbMkPp)
„ natalitia Meissn. (Sb.H.S.Pp)
„ nubica Benth. (Sb.L.B.MzHl)
„ recta Steud. (Sb.H.G.MbMkPp)
„ schinzii Bak. (Sb.L.B.Hl)
„ sp. (Murdoch 108) (Sb.M.B.Mz)
„ sp. (C.30900) (Sb.L.B.Hl)
„ sp. (Karsten s.n.) (Sb.H.G.Mb)

3673. Argyrolobium frutescens Burtt Davy (Sb.H.G.Mk)
„ harveyanum Oliv. (Hb.H.G.Pp)
„ longifolium Walp. (Hb.H.G.Mb)
„ speciosum E. & Z. (Hb.MH.G.MbHl)
„ tomentosum (Andr.) Druce (Sb.MH.G.MbHl)
„ tuberosum E. & Z. (Hb.H.GS.Mb)
„ wilmsii Harms (Sb.LM.B.Mb)
„ sp. (C.29991) (Sb.H.S.Pp)

3690. Trifolium africanum Ser. var. glabellum (E. Mey.) Harv. (Hb.H.S.Mb)

3698. Lotus discolor E. Mey. (Hb.H.S.MbMk)

3702. Indigofera annua Milne-Redhead (Hb.M.R.MbSg)
„ arrecta Hochst. (Sb.LM.S.MbMkHl)
„ buchananii Burtt Davy (Hb.H.G.MbPp)
„ comosa N.E.Br. (Hb.M.G.Sg)
„ crebra N.E.Br. (Sb.H.G.MkHl)
„ densa N.E.Br. (Sb.H.G.MbPp)
„ fastigiata E. Mey. (Sb.MH.G.MbSg)
„ galpinii N.E.Br. (Sb.LM.SR.Mb)
„ hedyantha E. & Z. (Sb.H.G.Mb)
„ hilaris E. & Z. (Sb.LMH.BG.MbMkMzSgHlPp)
„ malacostachys Benth. (Sb.L.B.Mb)
„ oxalidea Welw. ex Baker (Sb.H.G.Hl)
„ rostrata Bolus (Sb.H.G.MbMkHl)

Indigofera sanguinea N.E.Br. (Sb.LMH.G.MbMkMzSgHl)
„ schlechteri Bak.f. (Sb.L.B.Sg)
„ subulata Vahl. ex Poir. (Sb.L.B.Hl)
„ swaziensis Bolus (Sb.H.G.Mb)
„ „ „ var. perplexa (N.E.Br.) Gillett (Sb.L.B.MzHlPp)
„ tristoides N.E.Br. (Sb.H.G.MbPp)
„ sp. (Dlamini s.n.) (Sb.H.G.Mb)
„ sp. (C.31697) (Sb.L.B.Hl)
„ sp. (C.31918) (Sb.M.F.Mb)

3703. Psoralea pinnata L. (Sb.H.S.MbPp)
„ „ „ var. latifolia Harv. (Sb.H.S.Mb)
„ „ „ var. glabra Harv. (Sb.H.G.Pp)
„ wilmsii Harms (Sb.H.GSF.MbPp)

3718. Tephrosia apiculata Forbes (Sb.M.B.Mk)
„ cordata Hutch. & Burtt Davy (Sb.MH.G.MbSgPp)
„ diffusa (E. Mey.) Harv. (Hb.H.G.MbMk)
„ elongata E. Mey. (Hb.L.B.MbMkMz)
„ „ „ var. pubescens Harv. (Hb.M.B.Sg)
„ grandiflora (Ait.) Pers. (Sb.L.B.Sg)
„ longipes Meissn. (Sb.LM.B.MbSg)
„ „ .. var. lurida (Sond.) Gillett (Sb.L.B.SgPp)
„ macropoda (E. Mey.) Harv. (Hb.MH.G.MbMkSgPp)
„ multijuga R. G. N. Young (Sb.M.B.MbSg)
„ *oblongifolia E. Mey.
„ polystachya E. Mey. (Sb.H.G.MbPp)
„ „ „ var. hirta Harv. (Sb.LMH.B.G.MbMkHl)
„ „ „ var. latifolia Harv. (Sb.M.B.Sg)
„ polystachyoides Bak.f. (Sb.L.B.Hl)
„ purpurea Pers. (Sb.LH.BG.MbHl)
„ *retusa Burtt Davy
„ sparsiflora H. M. Forbes (Sb.L.B.Hl)
„ *spathacea Hutch. & Burtt Davy
„ sp. (C.25094) (Sb.H.S.Mb)

3719. Mundulea sericea (Willd.) A.Chev. (Sb.LM.B.MzSg)
3746. Microcharis galpinii N.E.Br. (Hb.H.G.Mb)
3747. Sesbania bispinosa (Jacq.) W. F. Wight (Sb.L.B.Hl)
„ sesban (L.) Merrill (Sb.L.S.SgHl)
3792. Ormocarpum trichocarpum (Taub.) Harms ex Burtt Davy (Sb.L.B.MzSgHl)
3793. Aeschynomene micrantha DC. (Sb.LM.B.MzSgHl)
„ rehmannii Schinz (Sb.H.G.MbMkPp)
„ „ „ var. leptobotrya (Harms ex Bak.f.) Gillett (Sb.H.G. Pp)
„ stipitata Burtt Davy (Sb.H.G.Mb)
„ wilmsii Harms (Sb.H.S.MbMk)
3796. Smithia parvifolia Burtt Davy (Sb.H.R.Pp)
3802. Stylosanthes fruticosa (Retz.) Als. (Hb.L.B.MbMzHlPp)
3804. Zornia capensis Pers. (Hb.LMH.G.MbMkMzSgHlPp)
3807. Desmodium hirtum Guill. & Perr. (Hb.H.GF.MbPp)
„ repandum (Vahl) DC. (Hb.H.F.MbPp)
3808. Pseudarthria hookeri W. & A. (Sb.MH.FS.MbMzSg)

3810. Alysicarpus rugosus (Willd.) DC. (Hb.LMH.B.MkMzHl)
„ vaginalis (L.) DC. (Hb.LM.B.MkMz)
3821. Dalbergia armata E. Mey. (C.MH.F.MbMkHlPp)
3828. Pterocarpus angolensis DC. (T.LMH.FB.MbMz)
„ rotundifolius (Sond.) Druce (T.L.B.MzSg)
3834. Lonchocarpus capassa Roife (T.L.B.Sg)
3856. Abrus fruticulosus Wall. ex W. & A. (C.MH.FR.MbMk)
„ precatorius L. (C.L.B.Pp)
3861. Dumasia villosa DC. (C.H.G.Mb)
3864. Glycine javanica L. (C.LMH.GF.MbMkPp)
3866. Teramnus labialis (L.f.) Spreng. (C.LM.B.MkMzHl)
3870. Erythrina humeana Spreng. (Sb.L.B.MzSg)
„ latissima E. Mey. (T.H.G.MbHlPp)
„ lysistemon Hutch. (T.LMH.BG.MbMzSg)
3877. Mucuna coriacea Baker (C.L.B.MzPp)
3882. Galactia tenuiflora (Willd.) W. & A. (C.L.B.MzPp)
3892. Cajanus cajan (L.) Millsp. (W.L.B.Hl)
3897. Rhynchosia albissima Gand. (Sb.L.B.Sg)
„ angulosa Schinz (Sb.H.G.MbPp)
„ caribaea DC. (C.MH.G.MbHlPp)
„ „ „ var. picta (E. Mey.) Bak.f. (C.H.S.MbHl)
„ clivorum Sp. Moore (Sb.H.G.Mb)
„ *cooperi (Harv. ex Bak.f.) Burtt Davy
„ crassifolia Benth. (Hb.MH.G.MbMkHl)
„ elegantissima Schinz (Hb.L.B.Hl)
„ galpinii Bak.f. (Hb.H.G.Mb)
„ *memnonia DC. var. prostrata Harv.
„ minima DC. (Hb.L.B.Hl)
„ monophylla Schltr (Hb.MH.G.Mb)
„ nervosa Benth. (C.MH.G.HlPp)
„ nitens Benth. (Sb.LM.B.MzSg)
„ pauciflora Bolus (Sb.H.G.MbMk)
„ pentheri Schltr ex A. Zahlbr. (C.M.B.Mz)
„ sordida (E. Mey.) Schinz (Sb.M.B.SgHl)
„ stenodon Bak.f. (C.H.S.Pp)
„ thorncroftii (Bak.f.) Burtt Davy (C.H.G.MbPp)
„ totta DC. (C.LMH.BG.MbMzSgHl)
„ woodii Schinz (Sb.H.G.Mb)
„ sp. (C.26839) (Sb.L.B.Mb)
„ sp. (C.29392) (C.L.B.Hl)
„ sp. (C.31386) (C.H.G.Mb)
3898. Eriosema cordatum E. Mey. (Hb.MH.G.MkHlPp)
„ „ „ var. gueinzii Harv. (Hb.MH.G.Mb)
„ kraussianum Meissn. (Hb.H.G.MbMkHl)
„ nanum Burtt Davy (Hb.H.G.Mb)
„ psoraleoides (Lam.) Don (Sb.LMH.S.MbMkMzSgHl)
„ *rufescens Schinz
„ salignum E. Mey. (Sb.H.S.Mb)
„ uniflorum Burtt Davy (Hb.H.G.Mb)
3899. Flemingia grahamiana W. & A. (Sb.MH.GS.MbMk)

3905. Vigna capensis (Thbg) Walp. (C.H.GF.MbHlPp)
„ davyi Bolus (Hb.H.G.HlPp)
„ galpinii Burtt Davy (C.H.S.Mb)
„ ? stenophylla Burtt Davy var. lata (Hb.H.G.Mb)
„ triloba (Thbg) Walp. (Hb.LMH.G.MbMkHl)
„ vexillata (L.) Benth. (Hb.H.G.MbMkHl)
3907. Sphenostylis angustifolia Sond. (Hb.H.G.Mb)
„ marginata E. Mey. (Hb.MH.G.MbMkSgPp)
3910. Dolichos biflorus L. (C.MH.G.Mk)
„ falcatus Klein ex Willd. (C.H.G.Mk)
„ lablab L. (C.H.GF.MbHl)

Geraniaceae

3924. Geranium ornithopodum E. & Z. (Hb.H.S.Mb)
„ „ „ var. album O.K. (Hb.H.G.Hl)
3925. Monsonia attenuata Harv. (Hb.H.G.MbMk)
„ biflora DC. (Hb.LMH.GB.MbMkMz)
„ transvaalensis R. Knuth (Hb.H.G.MbPp)
3928. Pelargonium aconitiphyllum (E. & Z.) Harv. (Hb.MH.G.MbMkHl)
„ acraeum R. A. Dyer (Sb.H.F.Mb)
„ alchemilloides (L.) Ait. (Hb.H.S.MbMkHl)
„ ? longiscapum Schltr (Hb.MH.G.MbSgHl)
„ luridum (Andr.) Sweet (Hb.LMH.G.MbMkSgHlPp)
„ rehmannii Szyszyl. (Hb.MH.G.MbSgHl)
„ zeyheri Harv. (Hb.M.G.MbMk)

Oxalidaceae

3936. Oxalis davyana R. Knuth (Bb.H.G.Mb)
„ depressa E. & Z. (Bb.L.B.Hl)
„ obliquifolia Steud. ex A. Rich (Bb.H.G.Mb)
„ ? setosa E. Mey. ex Sond.
„ smithiana E. & Z. (Bb.LM.B.MbSg)

Linaceae

3945. Linum thunbergii E. & Z. (Hb.H.S.Mb)

Erythroxylaceae

3956. Erythroxylum brownianum Burtt Davy (T.LMH.BG.MbMzSgHl)
„ delagoense Schinz (T.L.B.Mz)
„ emarginatum Thonn. (T.LMH.BS.MbMzSgHlPp)

Zygophyllaceae

3980. Balanites maughamii Sprague (T.L.B.Mz)
„ pedicellaris Mildbr. & Schlecht. (T.L.B.SgHl)

Rutaceae

3991. Fagara capensis Thbg (T.M.B.Sg)
„ davyi Verdoorn (T.LMH.BF.MbMkPp)
„ thorncroftii Verdoorn (T.L.B.Mz)
4035. Calodendrum capense (L.f.) Thbg (T.M.B.Hl)

4076. Vepris reflexa Verdoorn (T.L.B.MzHl)
„ *undulata (Thbg) Verdoorn
4077. Toddalia asiatica (L.) Lam.
4085. Teclea pilosa Verdoorn (T.L.B.Sg)
4091. Clausena anisata (Willd.) Hook.f. (T.LMH.BF.MbMzSgHl)

BURSERACEAE

4151. Commiphora africana (A. Rich) Engl. (Sb.L.B.Hl)
„ harveyi Engl. (T.LMH.F.MzSgHl)
„ pyracanthoides Engl. (Sb.L.B.Hl)

MELIACEAE

4157. Ptaeroxylon obliquum (Thbg) Radlk. (Sb.LMH.B.Hl)
4171. Turraea floribunda Hochst. (T.M.B.SgHl)
„ obtusifolia Hochst. (T.LM.B.SgHl)
4193. Ekebergia capensis Sparrm. (T.LMH.BF.MbMzSg)
„ pterophylla (C.DC.) Hofmeyer (T.H.GF.MbHlPp)
4195. Trichilia emetica Vahl (T.L.B.MzSgHlPp)

MALPIGHIACEAE

4219. Sphedamnocarpus galphimiifolius (Juss.) Szyszyl. (C.M.B.Sg)
„ pruriens (Juss.) Szyszyl. (C.LMH.BG.MbMkMzPp)
4220. Acridocarpus natalitius Juss. (Sb.L.B.Sg)

POLYGALACEAE

4273. Polygala africana Chodat (Hb.H.S.Mb)
„ albida Schinz (Hb.MH.GS.Mb)
„ amatymbica E. & Z. (Hb.LMH.BG.MbMzHl)
„ galpinii Hook.f. (Sb.H.F.Pp)
„ gracilenta Burtt Davy (Sb.M.B.MbHl)
„ hottentotta Presl. (Sb.LMH.BG.MbMzSgHlPp)
„ ohlendorffiana E. & Z. (Hb.H.GS.MbMkPp)
„ rehmannii Chodat (Sb.M.B.MbMkSg)
„ sphenoptera Fresen. (Sb.L.B.Hl)
„ virgata Thbg. (Sb.MH.BF.MbSgHl)
„ sp. (C.28499) (Sb.H.G.Pp)
4278. Muraltia empetroides Chodat (Sb.H.G.Pp)
„ saxicola Chodat (Sb.H.G.Mb)

EUPHORBIACEAE

4286. Andrachne ovalis Muell-Arg. (Sb.H.F.MbPp)
4291A. *Heywoodia lucens Sim (T.M.F.Sg)
4297. Securinega virosa (Roxb. ex Willd.) Pax & Hoffm. (Sb.LM.B.MzSgHl)
4299. Phyllanthus burchellii Muell-Arg. (Sb.M.B.Sg)
„ ? delagoensis Hutch. (W.L.Sg)
„ ? discoideus Muell-Arg. (Sb.M.B.Sg)
„ cf. glaucophyllus Sond. (Sb.H.G.Mb)
„ nrst. incurvus Thbg (Sb.L.B.Hl)
„ maderaspatensis L. (Sb.L.B.SgHl)

Phyllanthus meyerianus Muell-Arg. (Sb.L.B.Pp)
„ myrtaceus Sond. (Sb.MH.G.MbPp)
„ niruri L. (Sb.H.S.Mb)
„ pentandrus Schum. & Thonn. (Sb.L.B.MzSg)
„ reticulatus Poir. (T.L.B.MzSgHlPp)

4327. Antidesma venosum Tul. (T.LMH.BF.MbMkMzSgHlPp)

4345. Bridelia cathartica Bertol.f. (Sb.L.B.MzSgHl)
„ micrantha Baill. (T.MH.BF.MbPp)

4345A. Androstachys johnsonii Prain (T.L.F.Sg)

4348. Croton gratissimus Burch. (T.LM.B.MkSgHl)
„ menyhartii Pax (Sb.L.B.Sg)
„ steenkampiana Gerstn. (Sb.L.B.Sg)
„ *sylvaticus Hochst. (T.M.F.Sg)

4367. Micrococca capensis Prain (Sb.H.F.Pp)

4368. Erythrococca nr. menyhartii (Pax) Prain (Sb.H.F.Pp)

4370. Adenocline mercurialis Turcz. (Hb.H.F.MbPp)

4372. Leidesia procumbens (L) Prain (Hb.H.F.Hl)

4407. Acalypha angustata Sond. (Hb.H.G.MbMkHl)
„ caperonoides Baill. (Hb.H.G.MbMkHl)
„ „ „ var. galpinii Prain (Hb.H.G.Mb)
„ depressinervia K.Schum. (Hb.MH.GS.MbMzPp)
„ ecklonii Baill. (Hb.H.S.Pp)
„ glabrata Thbg (T.L.B.MzSgHl)
„ glandulifolia Buching ex Meissn. (Hb.M.B.Mk)
„ indica L. (Hb.L.B.Hl)
„ petiolaris Hochst. (Hb.LM.B.MbMkMz)
„ punctata Meissn. (Hb.MH.GS.MbMkMzPp)
„ „ „ *var. rogersii Prain
„ senensis Klotzsch (Hb.LMH.BG.MbMzHlPp)
„ wilmsii Pax (Hb.MH.G.MbMkSgPp)
„ sp. nov. (C.27625) (Hb.H.S.Pp)
„ sp. (C.31997) (Hb.H.G.MbPp)

4416. Tragia benthamii Baker (Hb.M.G.Mb)
„ nrst. durbanensis O.K. (Hb.MH.G.Mb)
„ meyeriana Muell-Arg. (Hb.LMH.BG.MbHl)
„ minor Sond. (Hb.MH.BG.SgHl)
„ „ „ var. longifolia Prain (Hb.M.B.Mz)
„ okanyua Pax (Hb.H.G.MbPp)
„ rupestris Sond. (C.LMH.BG.MbHl)
„ sonderi Prain (Hb.MH.G.MbMk)

4416A. Ctenomeria capensis (Thbg) Harv. ex Sond. (C.MH.F.MbSgPp)

4419. Sphaerostylis natalensis (Sond.) Croiz. (Sb.H.F.Mk)

4422. Dalechampia capensis Spreng. (C.LMH.BG.MbSgHl)
„ galpinii Pax (C.L.B.MzSgHl)

4433. Jatropha erythropoda Pax & Hoffm. (Hb.L.B.Sg)
„ hirsuta Hochst. var. oblongifolia Prain (Hb.LMH.B.MkMzHl)
„ latifolia Pax var. angustata Prain (Hb.LM.B.MbPp)
„ „ „ var. swazica Prain (Hb.M.B.Sg)
„ cf. variifolia Pax (Sb.L.F.SgHl)
„ zeyheri Sond. (Hb.L.B.MzHl)

4448. Cluytia affinis Sond. (Sb.H.S.MbMkPp)
,, galpinii Pax (Hb.H.G.Pp)
,, monticola Sp.Moore (Hb.MH.G.MbMzPp)
,, pulchella L. (Sb.H.F.MbPp)
,, virgata Pax & Hoffm. (Sb.H.G.MbHlPp)
4478. Spirostachys africana Sond. (T.L.B.MzSg)
4498. Euphorbia clavigera N.E.Br. (Suc.L.B.Mz)
,, cooperi N.E.Br. (SucT.LMH.BHR.MbHl)
,, ericoides Lam. (Sb.H.G.Mb)
,, evansii Pax (SucT.MH.B.HlPp)
,, grandicornis Goebel (Suc.L.B.SgHl)
,, gueinzii Boiss. (Hb.MH.G.MbPp)
,, hirta L. (W.)
,, *hypericifolia L.
,, inaequilatera Sond. (W.)
,, ingens E. Mey. (SucT.LM.B.MkMzSgHl)
,, neopolycnemoides Pax & Hoffm. (Hb.L.B.SgHl)
,, pulvinata Marloth (Suc.MH.BG.Hl)
,, schinzii Pax (Suc.L.B.MzHl)
,, striata Thbg (Hb.H.GS.Mb)
,, tirucalli L. (SucT.LM.B.MbSgHl)
,, transvaalensis Schltr (Sb.L.F.Sg)
,, triangularis Desf. (SucT.LM.B.MzHlPp)
4500. Synadenium cupulare (Boiss.) Wheeler (SucSb.L.F.Pp)
4503. Monadenium lugardae N.E.Br. (Suc.L.B.SgHl)

Anacardiaceae

4558. Sclerocarya birrea (A. Rich) Hochst. (T.L.B.MzSgHlPp)
4562. Harpephyllum caffrum Bernh. ex Krauss (T.M.F.Sg)
4563. Lannea discolor (Sond.) Engl. (T.L.B.MzSgPp)
,, edulis (Sond.) Engl. (Sb.MH.G.MbMzPp)
4576. Protorhus longifolia (Bernh.) Engl. (T.H.F.Mb)
4589. Heeria insignis (Del.) O.K. (T.L.B.Hl)
,, paniculosa (Sond.) O.K. (T.H.G.MbHl)
,, reticulata Engl. (T.LM.B.MzSg)
4594. Rhus amerina Meikle (Sb L.B.Sg)
,, *ciliata Licht.
,, dentata Thbg sens. lat. (Sb.LMH.BG.MbMkMzSgPp)
,, discolor E. Mey. (Sb.H.G.Mb)
,, dura Schönl. (Sb.H.G.MbPp)
,, eckloniana Sond. (Sb.MH.G.MbMkPp)
,, ernestii Schönl. (Sb.H.R.Mb)
,, fraseri Schönl. (Sb.LMH.S.MbPp)
,, gerrardii Harv. (T.MH.S.MbMzPp)
,, intermedia Schönl. (Sb.LMH.BG.MbMkSgPp)
,, legati Schönl. (T.MH.F.MbMkSgHl)
,, macowanii Schönl. and vars. (Sb.LMH.BGR.MbMkMzSgHl)
,, natalensis Bernh. (Sb.H.G.Pp)
,, pentheri Zahlbr. (T.LM.B.MbMkMzSgHl)
,, pondoensis Schönl. (Sb.H.G.Mb)

Rhus pyroides Burch. (Sb.H.G.MbHl)
„ „ „ var. gracilis Burtt Davy (Sb.LMH.MbMzPp)
„ rogersii Schönl. (Sb.M.B.Hl)
„ simii Schönl. (Sb.L.B.Hl)
„ spinescens Diels (T.L.B.MzSgHl)
„ transvaalensis Engl. (Sb.M.B.Pp)
„ sp. (C.26041) (T.L.B.Pp)
„ sp. nov. (C.29352) (Sb.H.G.Mb)
„ sp. (C.30181) (Sb.H.G.Mb)

Aquifoliaceae

4614. Ilex mitis (L.) Radlk. (T.H.FS.MbPp)

Celastraceae

4626. Maytenus acuminatus (L.f.) Loes. (Sb.H.G.Hl)
„ cymosus (Soland.) Exell. (Sb.LMH.BG.MbMkMzSgHlPp)
„ mossambicensis (Klotzsch) Blake. (Sb.H.F.MbHl)
„ nemorosus (E. & Z.) Marais (Sb.LM.B.MbMzSg)
„ peduncularis (Sond.) Loes. (Sb.LMH.BF.MbSgPp)
„ senegalensis (Lam.) Loes. (Sb.LM.B.MkMzSgHlPp)
„ tenuispinus (Sond.) Marais (Sb.M.B.Sg)
„ undatus (Thbg) Blake. (T.LMH.BF.MbMzSgPp)
4628. Putterlickia ? pyracantha Endl. (Sb.M.B.Mz)
4629. Catha edulis Forsk. (T.LM.FS.MbMkMzSgHlPp)
4630. Pterocelastrus echinatus N.E.Br. (Sb.H.G.MbHl)
„ galpinii Loes. (T.H.GF.MbPp)
„ tricuspidatus Sond. (Sb.H.G.Mb)
„ sp. (Dale 2111a)
4641. Cassine aethiopica Thbg (Sb.LM.B.MbMkSgHlPp)
„ burkeana Ktze (Sb.LMH.B.MzHl)
„ eucleaeformis O.K. (T.H.F.Pp)
„ kraussiana Bernh. (Sb.H.G.Mb)
„ tetragona Loes. var. laxa Loes. (T.H.F.Hl)
4641A. Pseudocassine transvaalensis (Burtt Davy) Bredell (Sb.L.B.MzSg)

Icacinaceae

4671. Cassinopsis ilicifolia (Hochst.) O.K. (Sb.H.F.MbMkHlPp)
„ tinifolia Harv. (Sb.H.G.Pp)
4686. Apodytes dimidiata E. Mey. (T.LMH.F.MbMkMzSgHlPp)
4709. Pyrenacantha grandiflora Baill. (Sb.L.F.Sg)

Sapindaceae

4726. Cardiospermum halicacabum L. (C.L.B.MkHl)
4734. Allophylus decipiens (Sond.) Radlk. (T.LMH.BG.MbMzHlPp)
„ melanocarpus (Sond.) Radlk. (T.H.F.MbHl)
4735. Atalaya alata (Sim) Forbes (T.LM.F.SgHl)
4784. Pappea capensis (Spreng.) E. & Z. var. radlkoferi Schinz (T.L.B.MzHlPp)
4831. Dodonaea viscosa (L.) Jacq. (Sb.M.G.Mz)
4836. Hippobromus pauciflorus (L.) Radlk. (T.LM.BS.MkMzSgHl)

MELIANTHACEAE

4853. Bersama lucens (Hochst.) Szyszyl. (T.H.G.Mb)
,, transvaalensis Turrill (T.H.F.Mb)
4855. Greyia radlkoferi Szyszyl. (Sb.H.FR.MbPp)
,, sutherlandii Hook. & Harv. (Sb.H.FR.Mb)

BALSAMINACEAE

4856. Impatiens duthieae L.Bolus (Hb.H.FS.MbHlPp)

RHAMNACEAE

4861. Zizyphus mucronata Willd. (T.LMH.BG.MbMkSgHl)
4868A. Phyllogeiton ? discolor (Klotzsch) Herzog (T.L.B.MzSg)
,, zeyheri (Sond.) Suess. (T.LMH.B.MzSgHlPp)
4874. Scutia myrtina (Burm.f.) Kurz (Sb.H.FG.Hl)
4875. Rhamnus prinoides L'Hérit. (Sb.LMH.BF.MbMkPp)
4886. Phylica paniculata Willd. (Sb.H.R.Mb)
4905. Helinus integrifolius (Lam.) O.K. (C.MH.GB.MbMkSgHl)

HETEROPYXIDACEAE

4908A. Heteropyxis canescens Oliv. (T.H.F.Mb)
,, natalensis Harv. (T.L.B.MkMzSgPp)

VITACEAE

4917. Rhoicissus digitatus (L.f.) G. & B. (C.L.B.Sg)
,, napaeus C. A. Smith (Sb.LMH.BG.MbMzMkHl)
,, revoilii Planch. (C.H.F.Pp)
,, rhomboidea (E. Mey. ex Harv.) Planch. (C.H.F.MbHl)
,, tomentosa (Lam.) Wild & Drummond (C.LMH.F.SgHl)
,, tridentata (L.f.) Wild & Drummond (C.LMH.BG.MbMkSg)
4918. Cissus diversilobatus C. A. Smith (Sb.H.S.MkHl)
,, rotundifolius (Forsk.) Vahl (SucC.L.B.MzSgHl)
,, succulentus (Galpin) Burtt Davy (SucC.L.B.SgHl)
4918A. Cyphostemma cirrhosum (Thbg) Descoings (C.H.G.Mb)
,, schlechteri (Gilg & Brandt) Descoings (C.L.B.Hl)
,, simulans (C. A. Smith) Wild & Drummond (C.LMH.BG.MbSgHl)
,, subciliatum (Baker) Descoings (C.L.B.MzSg)
,, woodii (Gilg & Brandt) Descoings (Sb.LMH.BG.MbSgHlPp)

TILIACEAE

4953. Corchorus confusus Willd. (Hb.L.B.Hl)
,, tridens L. (Hb.L.B.Hl)
,, trilocularis L. (Hb.LM.B.MzHl)
4957. Sparrmania ricinocarpa (E. & Z.) O.K. (Sb.H.FS.MbPp)
4966. Grewia bicolor Juss. (Sb.L.B.Hl)
,, caffra Meissn. (Sb.H.G.Mb)
,, flava DC. (Sb.L.B.Hl)
,, flavescens Juss. (Sb.L.B.MzSgHl)
,, hexamita Burret (TSb.L.B.MzSgHl)
,, cf. micrantha Bojer (T.L.B.Hl)
,, monticola Sond. (Sb.L.B.Hl)

Grewia occidentalis L. sens. lat. (Sb.LMH.BG.MbMkMzSgHlPp)
„ subspathulata N.E.Br. (Sb.L.B.Mz)
„ villosa Willd. (Sb.L.B.Hl)

4975. Triumfetta annua L. (Hb.H.G.Mb)
„ effusa E. Mey. (Sb.MH.G.MbSg)
„ pilosa Roth var. effusa (E. Mey. ex Harv.) Wild (Sb.MH.G.MbSg)
„ „ „ var. tomentosa Szyszyl. (Hb.M.B.Mz)
„ rhomboidea Jacq. (Hb.LMH.BG.MbSgHlPp)
„ welwitschii Mast. var. hirsuta Sprague & Hutch. (Hb.MH.G.MbMz)
„ „ „ *var. welwitschii

Malvaceae

4983. Abutilon austro-africanum Hochr. (Sb.L.B.Sg)
„ guineense (Schumach.) Baker f. ex Exell. (Sb.L.B.MzHl)
„ *mauritianum (Jacq.) G. Don
„ sonneratianum (Cav.) Sweet (Sb.M.B.Sg)

4998. Sida acuta Burm. f. (Sb.L.B.Pp)
„ cf. carpinifolia L. (Sb.H.F.Mb)
„ cordifolia L. (Sb.L.B.MbHlPp)
„ dregei Burtt Davy (Sb.L.B.Hl)
„ rhombifolia L. (Sb.H.G.Mk)
„ serratifolia Wilc. & Stey. (Sb.LMH.BG.MbMz)
„ triloba Cav. (Sb.M.B.Sg)

5007. Pavonia columella Cav. (Sb.LMH.BG.MbPp)
„ patens (Andr.) Chiov. (Sb.L.B.Sg)

5013. Hibiscus aethiopicus L. var. ovatus Harv. (Hb.MH.BS.MbMz)
„ barbosae Exell. ined. (Hb.LM.B.Sg)
„ calyphyllus Cav. (Sb.LMH.BG.MkMzSgHl)
„ cannabinus L. (Hb.LM.B.MzSgHl)
„ dongolensis Del. (Sb.L.B.Hl)
„ engleri F.Schum. (Sb.L.B.Mb)
„ meyeri Harv. ssp. meyeri (Sb.L.B.SgHl)
„ palmatus Forsk. (Sb.L.B.SgHl)
„ pusillus Thbg (Hb.LM.B.MkMzSgHl)
„ saxatilis Wood & Evans (Hb.MH.BS.MbSg)
„ surattensis L. (C.LM.B.MkPp)
„ trionum L. (Hb.MH.BG.MbMzHlSg)
„ vitifolius L. (Sb.L.B.MzSgHl)

5019. Cienfuegosia gerrardii (Harv.) Hochr. (Sb.M.B.Hl)
„ hildebrandtii Garcke (Sb.L.B.SgHl)

5020. Gossypium herbaceum L. ssp. africanum (Watt) Hutch. & Ghose (Sb.L.B.MzSg)

Sterculiaceae

5047. Melhania forbesii Planch. ex Mast. (Sb.L.B.Hl)
„ prostrata DC. (Sb.LM.B.SgHl)
„ rehmannii Szyszyl. (Sb.L.B.Hl)

5053. Dombeya *burgessiae Gerrard
„ cymosa Harv. (T.M.F.Sg)
„ pulchra N.E.Br. (Sb.LMH.BG.MbPp)
„ rotundifolia (Hochst.) Harv. (T.LM.B.MbMzSgHl)

5056. Hermannia auricoma K. Schum. (Sb.MH.G.MbPp)
,, ? boraginiflora Hook. (Sb.L.B.SgHl)
,, cristata Bolus (Hb.MH.G.MbMkSg)
,, depressa N.E.Br. (Sb.H.G.Mk)
,, erecta N.E.Br. (Hb.H.G.Mb)
,, grandifolia N.E.Br. (Sb.LM.F.Mb)
,, grandistipula K. Schum. (Sb.LM.B.MzHl)
,, montana N.E.Br. (Sb.H.G.MbPp)
,, rogersii Burtt Davy (Sb.H.G.MbPp)
,, transvaalensis Schinz (Sb.H.S.Mb)
5059. Waltheria indica L (Sb.LM.B.MbHl)
5083. Sterculia murex Hemsl. (T.L.F.Pp)
,, rogersii N.E.Br. (T.L.B.MzHl)

Ochnaceae

5112. Ochna arborea Burch. ex DC. (T.M.B.Sg)
,, atropurpurea DC. (Sb.M.B.Mk)
,, ,, ,, ? var. angustifolia Phillips (Sb.H.F.Pp)
,, natalitia (Meissn.) Walp. (T.LMH.BG.MbMzHl)

Hypericaceae

5168. Hypericum aethiopicum Thbg ssp. sonderi (Bred.) Robson (Hb.H.G.MbMkHlPp)
,, lalandii Choisy (Hb.H.S.Mb)
,, natalense Wood (Sb.H.S.Mb)
,, revolutum Vahl (Sb.H.GS.MbPp)

Guttiferae

5199. Garcinia gerrardii Harv. ex Sim (T.H.F.HlPp)
,, livingstonei T.And. (T.L.B.Hl)

Canellaceae

5256. Warburgia ugandensis Sprague (T.L.B.Mz)

Violaceae

5271. *Hybanthus thorncroftii (N.E.Br.) Burtt Davy (Hb.H.G.Mb)

Flacourtiaceae

5275. Rawsonia lucida Harv. & Sond. (T.H.F.Pp)
5284. Oncoba spinosa Forsk. (C.L.B.MzSgHl)
5296. Kiggelaria africana L. (T.H.F.Hl)
5304. Scolopia mundii Warb. (T.H.F.Mb)
,, zeyheri (Nees) Harv. (T.LMH.BGF.MbMzHlSgPp)
5312. Gerrardina foliosa Oliv. (T.H.FGR.MbPp)
5313. *Homalium dentatum (Harv.) Warb. (T.M.F.Sg)
5315. Trimeria rotundifolia (Hochst.) Gilg (T.MH.F.MbHlPp)
5326. Aphloia myrtiflora Warb. (T.H.F.Pp)
5328. Dovyalis caffra Warb. (Sb.L.B.SgHl)
,, rhamnoides (Burch.) Harv. (Sb.H.F.Hl)
,, zeyheri (Sond.) Warb. (Sb.L.B.Mz)

Turneraceae

5357. Piriqueta capensis (Harv.) Urb. (Sb.LM.R.Sg)

Passifloraceae

5369. Tryphostemma sagittatum Hutch. & Pearce (C.LM.B.MzSg)
,, sandersonii Harv. (Hb.H.G.MbHl)
,, *viride Hutch. & Pearce
,, sp. nov. (C.25206) (Hb.H.G.MbMk)
5370. Adenia digitata (Harv.) Engl. (C.LMH.BG.MbMzSgHl)
,, gummifera (Harv. & Sond.) Burtt Davy (C.LMH.BG.MbSgPp)
,, hastata (Harv.) Schinz (C.L.B.MzHl)
,, sp. nov. (Knowles s.n.) (C.M.F.Mb)

Achariaceae

5374. Ceratiosicyos laevis (Thbg) A. Meeuse (C.H.F.Mb)

Begoniaceae

5397. Begonia caffra Meissn. (Hb.H.FG.MbPp)
,, sonderiana Irmischer (Hb.H.FG.Pp)
,, sutherlandii Hook.f. (Hb.H.F.Pp)

Cactaceae

5416. Rhipsalis baccifera (J. Miller) Stearn (Sb.M.R.Sg)

Thymelaeaceae

5434. Peddiea africana Harv. (T.MH.F.MbMkHlPp)
5435. Gnidia fastigiata Rendle (Sb.H.SG.Mb)
,, gymnostachys (C. A. Mey.) Gilg (Sb.H.G.Mb)
,, woodii C. H. Wright (Sb.H.GR.MbPp)
5435A. Lasiosiphon caffer Meissn. (Hb.LMH.BG.MbMzHlPp)
,, capitatus (L.f.) Burtt Davy (Sb.LM.B.MkMzSgHl)
,, kraussianus Meissn. (Hb.MH.G.Mb)
,, ,, ,, var. villosus Burtt Davy (Hb.MH.G.MbMzHl)
,, ornatus Burtt Davy (Sb.M.H.G.MbSgHlPp)
,, robustus M. Moss ined. (Sb.MH.G.MbMkPp)
,, splendens Endl. (Sb.H.G.MbMk)
5435B. Arthrosolen microcephalus (Meissn.) Phillips (Sb.H.G.Mb)
5438. Englerodaphne pilosa Burtt Davy (Sb.H.G.Mb)
5461. Passerina filiformis L. (Sb.MH.S.Mb)
5465. Dais cotinifolia L. (Sb.MH.S.Mk)

Lythraceae

5480. Galpinia transvaalica N.E.Br. (T.L.B.Sg)
5486. Nesaea floribunda Sond. (Sb.H.S.Mb)
,, sagittifolia (Sond.) Koehne (Sb.LM.S.MbMz)

Rhizophoraceae

5529. Cassipourea *gerrardii Alston
,, sp. nov. (C.29685) (T.H.G.Hl)

Combretaceae

5538. Combretum apiculatum Sond. (T.L.B.MzHl)
„ erythrophyllum (Burch.) Sond. (T.LMH.SB.MbMz)
„ gueinzii Sond. (T.LMH.BG.MbMkMzSgHlPp)
„ hereroense Schinz (T.L.B.MzSgHl)
„ *imberbe Wawra var. petersii Engl. & Diels
„ kraussii Hochst. (T.H.F.MbHlPp)
„ microphyllum Klotsch (C.L.B.Sg)
„ suluense Engl. & Diels (T.LM.B.MbMkMzSgHlPp)
„ woodii Dümmer (T.LM.B.SgHlPp)
„ zeyheri Sond. (T.LM.B.MkMzPp)
5544. Terminalia phanerophlebia Engl. & Diels (T.L.B.MbMzSg)
„ sericea Burch. (T.L.B.MzSgHlPp)

Myrtaceae

5578. Eugenia natalitia Sond. (T.MH.GF.MbSg)
5583. Syzygium cordatum Hochst. ex Harv. & Sond. (T.MH.GS.MbMzPp)
„ gerrardii (Harv.) Hochst. (T.H.F.MbHlPp)
„ *guineense (Willd.) DC. (T.L.B.Sg)

Melastomaceae

5651. Antherotoma naudinii Hook.f. (Hb.H.S.Mb)
5659. Dissotis canescens (E. Mey. ex Graham) Hook.f. (Sb.H.S.Mb)
„ debilis (Sond.) Triana (Hb.H.S.Mb)
„ phaeotricha (Hochst.) Triana (Hb.MH.S.Mb)
„ princeps (Bonpl.) Triana (Sb.MH.S.MbMk)

Onagraceae

5793. Ludwigia octovalvis (Jacq.) Raven ssp. octovalvis (Sb.L.S.Mz)
„ stolonifera (Guill. & Perr.) Raven (Hb.L.S.Sg)
5795. Epilobium flavescens E. Mey. (Hb.H.S.MbMk)
„ salignum Haussk. (Hb.H.S.Mb)
„ tetragonum L. (Hb.H.S.MbMk)
„ sp. nov. (C.31256) (Hb.H.S.Mb)

Halorragidaceae

5833. Laurembergia repens Berg. (Hb.H.S.Mb)
5836. Gunnera perpensa L. (Hb.H.S.Mb)

Araliaceae

5872. Cussonia chartacea Schinz (T.H.G.MbMzSg)
„ kraussii Hochst. (T.L.B.Mz)
„ natalensis Sond. (T.LM.B.MzSgHl)
„ paniculata E. & Z. (T.H.G.Mk)
„ spicata Thbg (T.LMH.BG.MzSgHl)
„ umbellifera Sond. (T.H.F.MbMkPp)

Umbelliferae

5893. Hydrocotyle americana L. (Hb.H.SF.MbPp)
5894. Centella asiatica (L.) Urb. (Hb.H.G.Mb)
„ coriacea Nannf. (Hb.LMH.BS.MbSgHl)

5918. Sanicula elata Hamilt. ex Don (Hb.H.F.HlPp)
5922. Alepidea amatymbica E. & Z. (Hb.H.G.Mb)
,, attenuata Weim. (Hb.H.S.Mb)
,, gracilis Dümmer var. major Weim. (Hb.MH.BR.MbMkSgPp)
,, longifolia E. Mey. var. angusta (Dümmer) Weim. (Hb.H.GR.MbHlPp)
,, setifera N.E.Br. (Hb.H.S.MbPp)
,, sp. nov. (C.26735) (Hb.H.R.Mb)
5992. Heteromorpha involucrata Conrath (Sb.MH.G.MbPp)
,, transvaalensis Schltr & Wolfe (T.H.F.Mb)
,, trifoliata (Wendl.) E. & Z. (TSb.H.FG.MbMzHlPp)
,, sp. (C.25004) (Sb.H.G.Mb)
5994. Bupleurum mundtii C. & S. (Hb.H.G.Hl)
6004. Apium leptophyllum (Pers.) F.Muell. (Hb.MH.G.MbPp)
6033. Pimpinella caffra (E. & Z.) Harv. (Hb.MH.GS.MbHlPp)
,, transvaalensis Wolff (Hb.H.G.Mb)
6038. Sium repandum Welw. var. latifolium Burtt Davy (Hb.MH.S.MbMzHl)
6038A. Berula thunbergii (DC.) Wolff (Hb.L.S.Mz)
6078. Annesorrhiza flagellifolia Burtt Davy (Hb.H.R.Mb)
6116. Peucedanum caffrum Phillips (Hb.M.G.Mb)
,, capense Sond. (Hb.LMH.BG.MzSgPp)
,, magalismontanum Sond. (Hb.MH.GS.MbHl)
,, sp. (C.31413) (Hb.H.S.Mb)
6120. Pastinaca sativa L. (Hb.H.G.Mk)

Cornaceae

6156. Curtisia dentata (Burm.f.) C. A. Smith (T.H.F.MbMkHlPp)

Ericaceae

6216. Vaccinium exul Bolus (Sb.H.F.Pp)
6237. Erica barbertona Galpin (Sb.H.R.MbPp)
,, caffrorum Bolus (Sb.H.R.MbPp)
,, cerinthoides L. sens. lat. (Sb.H.R.Mb)
,, drakensbergensis Guthr. & Bolus (Sb.H.GS.MbPp)
,, holtii Schweickerdt (Sb.H.G.Mb)
,, leucopelta Tausch var. luxurians Verdoorn (Sb.H.G.Pp)
,, oatesii Rolfe (Sb.H.S.Mb)
,, woodii Bol. (Sb.H.R.MbPp)
,, sp. (McLeod s.n.)

Myrsinaceae

6283. Maesa lanceolata Forsk. (T.MH.FG.MbMzPp)
6313. Myrsine africana L. (Sb.H.GR.MbPp)
6314. Rapanea melanophloeos (L.) Mez (T.MH.FG.MbMzSgPp)

Primulaceae

6330. Lysimachia ruhmeriana Vatke (Hb.H.S.Mb)
6338. Anagallis huttonii Harv. (Hb.H.S.Mb)

Plumbaginaceae

6343. Plumbago zeylanica L. (Sb.L.B.Mz)

Sapotaceae

6468. Sideroxylon inerme L. (T.LM.B.MzSgHl)
6377. *Chrysophyllum viridifolium Wood & Franks
6377A. Bequaertiodendron magalismontanum (Sond.) Heine & J. H. Hemsley (T.LMH.BG.MbPp)
„ *natalense (Sond.) Heine & J. H. Hemsley
6386. Mimusops obovata Sond. (T.L.F.Sg)
„ zeyheri Sond. (T.L.F.MbSgHlPp)
6386B. Manilkara concolor (Harv. ex C. H. Wr.) Gerstner (T.L.B.MzSg)
„ mochisia (Baker) Dubard (T.L.B.Sg)

Ebenaceae

6404. Euclea crispa (Thbg) Guerke var. crispa (Sb.LMH.BG.MbMzMkSgHlPp)
„ divinorum Hiern (T.LM.B.MkSgHl)
„ macrophylla E. Mey. (TSb.MH.FG.Mb)
„ natalensis A.DC. (Sb.LM.B.MzSgHl)
„ schimperi (A.DC.) Dandy var. daphnoides (Hiern) de Winter (T.L.B.Mz)
„ „ „ „ var. schimperi (Sb.MH.FG.Mb)
„ undulata Thbg (Sb.L.B.SgHl)
6406. Diospyros dichrophylla (Gand.) de Winter (Sb.LM.B.Sg)
„ galpinii (Hiern) de Winter (Hb.H.G.MbMk)
„ lycioides Desf. ssp. guerkei (Kuntze) de Winter (Sb.LMH.BG.MbMkMzHl)
„ „ „ ssp. nitens (Harv. ex Hiern) de Winter (Sb.L.B.SgHl)
„ „ „ ssp. sericea (Bernh.) de Winter (Sb.LMH.BG.MbMzMkSgHl)
„ natalensis (Harv.) Brenan ssp. nummularia Brenan (Sb.LM.B.Sg)
„ whyteana (Hiern) F. White (Sb.MH.G.MbMkHl)

Oleaceae

6422. Schrebera alata (Hochst.) Welw. (T.L.S.Mk)
„ argyrotricha Gilg sens. lat. (Sb.LMH.BR.MbHl)
6434. Olea africana Mill. (T.LMH.BG.SgHl)
„ capensis L. ssp. enervis (Harv. ex C. H. Wr.) Verdoorn (T.MH.BG.MbMk)
6440. Jasminum breviflorum Harv. ex C. H. Wr. (Sb.L.B.Hl)
„ fluminense Vell. (C.LM.B.MzSgHl)
„ multipartitum Hochst. (C.LM.B.MbMzSgHl)
„ streptopus E. Mey. var. transvaalense (S. Moore) Verdoorn (C.H.F.MbHl)

Salvadoraceae

6444. Azima tetracantha Lam. (Sb.L.B.SgHl)
6446. *Salvadora angustifolia Turrill var. australis (Schweick.) Verdoorn (T.L.B.Hl)

Loganiaceae

6460. Strychnos henningsii Gilg (T.M.B.SgHl)
„ innocua Del. ssp. dysophylla (Benth.) Verdoorn (T.L.B.MzSgHlPp)
„ mitis S. Moore (T.LM.B.SgHl)
„ spinosa Lam. sens. lat. (T.L.B.Sg)
„ usambarensis Gilg (T.M.B.SgHl)

6466. Anthocleista grandiflora Gilg (T.L.BS.Pp)
6469. Nuxia congesta R.Br. ex Fres. (T.MH.F.MbSg)
„ floribunda Benth. (T.H.F.Hl)
„ oppositifolia (Hochst.) Benth. (T.LM.BS.MbMzSgPp)
6473. Buddleia auriculata Benth. (Sb.H.F.Mb)
„ dysophylla (Benth.) Radlk. (C.H.F.Hl)
„ pulchella N.E.Br. (C.H.F.Hl)
„ saligna Willd. (Sb.H.G.Hl)
„ salviifolia (L.) Lam. (Sb.H.G.MbPp)

Gentianaceae

6481. Sebaea erosa Schinz (Hb.H.S.Mb)
„ filiformis Schinz (Hb.H.S.Mb)
„ grandis (E. Mey.) Steud. (Hb.H.GS.MbMkPp)
„ longicaulis Schinz (Hb.H.S.Mb)
„ rehmannii Schinz (Hb.H.GS.MbPp)
„ sedoides Gilg sens. lat. (Hb.H.S.MbHl)
6484. Enicostema hyssopifolium (Willd.) Verdoorn (Hb.L.S.Mz)
6503. Chironia krebsii Griseb. (Hb.H.S.Mb)
„ palustris Burch. sens. lat. (Hb.H.S.MbHl)
„ purpurascens (E. Mey.) Benth. & Hook.f. (Hb.MH.G.MbMzPp)
6512. Swertia welwitschii Engl. (Hb.H.S.Mb)
6545. Nymphoides indica (L.) Kuntze (Hb.H.S.Mb)

Apocynaceae

6558. Acokanthera oppositifolia (Lam.) L. E. Codd (Sb.L.B.Mz)
„ schimperi (A.DC.) Schweinf. var. rotundata L. E. Codd (T.M.R,Hl)
6559. Carissa bispinosa (L.) Desf. ex Brenan (Sb.LMH.BF.MbMkSgHlPp)
„ tetramera (Sacleux) Stapf (Sb.L.B.SgHl)
6581. Gonioma kamassi E. Mey. (T.H.G.Mb)
6605. Tabernaemontana elegans Stapf (T.L.F.Sg)
6619. Rauwolfia caffra Sond. (T.M.B.MzMk)
6680. Adenium obesum (Forsk.) R. & S. var. multiflorum (Klotzsch) L. E. Codd (SbSuc.L B. SgHl)
„ swazicum Stapf (SbSuc.L.B.Sg)
6681. Pachypodium saundersii N.E.Br. (SbSuc.L.BR.Sg)
6688. Strophanthus speciosus (Ward & Harv.) Reber (Sb.H.F.Hl)
6689. Wrightia natalensis Stapf (T.M.F.Sg)

Asclepiadaceae

6729. *Chlorocodon whytei Hook.f. (C.L.B.Sg)
6730. Tacazzea apiculata Oliv. (C.L.B.Sg)
„ kirkii N.E.Br. (C.L.B.Sg)
6740. Cryptolepis oblongifolia Schltr (Sb.MH.G.Mb)
6741. Stomatostemma monteiroae N.E.Br. (C.L.B.SgHl)
6747. Raphionacme elata N.E.Br. (Hb.LMH.BG.MbMkSgHl)
„ galpinii Schltr (Hb.L.B.Sg)
„ hirsuta (DC.) R. A. Dyer (Bb.H.G.Mb)
„ procumbens Schltr (Hb.L.B.Mz)

6777. Xysmalobium acerateoides (Schltr) N.E.Br. (Hb.H.G.MbMkPp)
„ asperum N.E.Br. (Hb.H.G.Mb)
„ confusum Scott-Elliot (Hb.M.G.Mb)
„ orbiculare D. Dietr. (Hb.LM.B.Mz)
„ undulatum R.Br. (Hb.M.G.MbMz)
6778. Schizoglossum altissimum Schltr (Hb.M.B.Mb)
„ araneiferum Schltr (Hb.LH.G.MbMz)
„ cordifolium E. Mey. (Hb.H.GS.MbHl)
„ garcianum Schltr (Hb.L.B.Hl)
„ pachyglossum Schltr (Hb.H.G.Mb)
„ pilosum Schltr (Hb.H.G.MbPp)
„ pulchellum Schltr (Hb.H.G.MbPp)
„ robustum Schltr var. pubiflorum N.E.Br. (Hb.MH.G.MbMz)
„ ? umbelluliferum Schltr (Hb.H.G.Mb)
6783A. Periglossum kassnerianum Schltr (Hb.M.B.Mz)
6787A. Pachycarpus appendiculatus E. Mey. (Hb.M.G.Hl)
„ campanulatus N.E.Br. (Hb.H.G.Mb)
„ concolor E. Mey. (Hb.LM.B.Mz)
„ decorus N.E.Br. (Hb.LM.B.Hl)
„ galpinii N.E.Br. (Hb.H.G.Mb)
„ scaber (Harv.) N.E.Br. (Hb.LMH.BG.MbMzMkHl)
„ transvaalensis N.E.Br. (Hb.MH.G.MbMz)
6791. Asclepias adscendens Schltr (Hb.LMH.BG.MzMkSg)
„ affinis Schltr (Hb.LMH.G.MbMkSgHl)
„ aurea Schltr (Hb.MH.G.MbMkPp)
„ brevicuspis (E. Mey.) Schltr (Hb.L.B.Sg)
„ crassinervis N.E.Br. (Hb.H.G.MbHl)
„ crispa Berg. var. plana N.E.Br. (Hb.LMH.G.MbHl)
„ cucullata Schltr (Hb.H.G.Mb)
„ cultriformis Harv. ex Schltr (Hb.H.G.Hl)
„ densiflora N.E.Br. (Hb.LMH.G.MbMzHl)
„ dissona N.E.Br. (Hb.H.G.Mb)
„ dregeana Schltr (Hb.MH.G.MbMzHl)
„ eminens Schltr (Hb.LMH.G.MzMkHl)
„ expansa (E. Mey.) Schltr (vel sp. nov.) (C.27589) (Hb.H.G.Mb)
„ fruticosa L. (W.LM.G.MbMzHlPp)
„ gibba Schltr (Hb.H.G.MbPp)
„ glaucophylla Schltr (Hb.M.G.Mb)
„ physocarpa (E. Mey.) Schltr (Sb.LM.BS.MzSg)
„ stellifera Schltr (Hb.H.G.MbMk)
„ woodii Schltr (Hb.H.G.Mb)
„ sp. (Karsten s.n.) (Hb.H.G.Mb)
6810. Pentarrhinum insipidum E. Mey. (C.MH.F.MbSg)
6834. Cynanchum mossambicense K. Schum. (C.L.B.Sg)
„ tetrapterum (Turcz.) R. A. Dyer (C.LM.B.MzSgHl)
6849. Sarcostemma viminale R.Br. (CSuc.LMH.BG.MbMzSgHl)
6860. Secamone alpinii Schultes (C.H.F.MbHlPp)
„ frutescens Decne (C.L.B.SgHl)
„ gerrardii Harv. (C.MH.BF.SgHl)
„ parvifolia (Oliv.) Bull. (C.L.B.SgHl)

6861. Sisyranthus huttonae (S. Moore) S. Moore (Hb.H.G.MbHl)
„ imberbis Harv. (Hb.MH.G.Mb)
„ randii S. Moore (Hb.H.GS.MbPp)
„ saundersiae N.E.Br. (Hb.H.G.Mb)
6868. Anisotoma pedunculata N.E.Br. (C.H.G.Mb)
6870. Brachystelma gerrardii Harv. (Hb.H.G.MbMk)
„ macropetalum N.E.Br. (Hb.L.B.Mz)
„ pulchellum (Harv.) Schltr (Bb.H.R.Mb)
6874. Ceropegia ampliata E. Mey. (C.L.B.SgHl)
„ barbertonensis N.E.Br. (C.H.F.Mb)
„ carnosa E. Mey. (C.M.FR.Mb)
„ cimiciodora Oberm. (C.L.B.Hl)
„ decidua E. A. Bruce (C.L.B.Sg)
„ fortuita R. A. Dyer (C.L.B.Sg)
„ plicata Bruce (C.L.B.Hl)
„ randallii N.E.Br. (C.L.B.Hl)
„ sandersonii Decne ex Hook.f. (C.L.B.MzSgHl)
„ ? setifera Schltr (C.L.B.Hl)
„ thorncroftii N.E.Br. (C.L.B.Mz)
„ undulata N.E.Br. (C.L.B.Sg)
„ sp. (C.31322) (C.L.B.Hl)
„ sp. (C.31633) (C.L.B.Sg)
„ sp. (Bayliss s.n.) (C.L.B.Sg)
6875. Riocreuxia picta Schltr (C.H.F.MbHl)
„ torulosa Decne (C.H.FS.MbMk)
6883. Duvalia polita N.E.Br. (Suc.L.B.Hl)
6884. Caralluma gerstneri Letty (Suc.L.B.Hl)
„ keithii Dyer (Suc.M.G.Sg)
„ rogersii Bruce & Dyer (Suc.L.B.Hl)
„ ubomboensis Verdoorn (Suc.LM.R.Sg)
6885. Stapelia gigantea N.E.Br. (Suc.L.B.SgHl)
„ unicornis Lückhoff (Suc.M.R.Sg)
„ sp. (Dlamini)
6885A. Stultitia paradoxa Verdoorn (Suc.L.B.Hl)
6887. Huernia hystrix N.E.Br. (Suc.L.B.SgHl)
„ stapelioides Schltr (Suc.M.R.Sg)
„ zebrina N.E.Br. (Suc.L.B.SgHl)
6896. Sphaerocodon obtusifolium Benth. (Hb.L.B.Mz)
6899. Tylophora lycioides Decne (C.L.B.Hl)
6917. Pergularia daemia (Forsk.) Chiov. (C.L.B.Hl)
6917A. Telosma africana N.E.Br. (C.L.B.Sg)
6921. Tenaris filifolia N.E.Br. (Hb.L.R.Mb)
„ simulans N.E.Br. (Hb.H.G.Mk)
6924. Fockea angustifolia K. Schum. (C.L.B.SgHl)
„ sp. (C.31433) (C.L.B.Sg)

Convolvulaceae

6968. Cuscuta campestris Yuncker (P.H.G.Mb)
„ cassytoides Nees ex Engelm. (P.H.G.Mb)
6973. Evolvulus alsinoides (L.) L (Hb.M.B.Sg)

6978. Seddera suffruticosa (Schinz) Hallier f. (Hb.L.B.SgHl)
6993. Convolvulus farinosus L. (C.LMH.BF.Hl)
,, natalensis Bernh. var. transvaalensis (Schltr) A. Meeuse (C.H.G.MbMk)
,, ulosepalus Hallier f. (Hb.MH.G.Mb)
6995. Hewittia sublobata (L.f.) O.K. (C.L.F.Pp)
6997. Merremia pterygocaulos (Choisy) Hall.f. (C.L.F.Mk)
,, tridentata (L.) Hall.f. ssp. angustifolia (Jacq.) Ooststr. (C.L.B.MbMz)
7003. Ipomoea albivenia (Lindl.) Sweet (C.LM.B.MzSg)
,, bolusiana Schinz (Hb.L.B.MzSg)
,, crassipes Hook. sens. lat. (Hb.LMH.BG.MbMzMkSgHl)
,, ficifolia Lindl. (C.H.F.Hl)
,, lapathifolia Hallier f. (C.L.B.Hl)
,, magnusiana Schinz var. eenii (Rendle) A. Meeuse (C.L.B.Hl)
,, obscura (L.) Ker-Gawl. sens. lat. (C.LM.B.MkSgHl)
,, plebeia R.Br. ssp. africana A. Meeuse (C.LM.B.MbMzPp)
,, sinensis (Desr.) Choisy ssp. blepharosepala (Hochst. ex A. Rich) Verdc. ex A. Meeuse (C.L.B.Hl)
,, wightii (Wall.) Choisy (C.L.F.Pp)
7008A. Turbina oblongata (E. Mey. ex Choisy) A. Meeuse (Hb.MH.S.Mb)

Boraginaceae

7038. Cordia ovalis R.Br. (Sb.L.B.Hl)
7043. Ehretia amoena Klotzsch (T.L.B.HlPp)
,, rigida (Thbg) Druce (Sb.LMH.B.SgHl)
7052. Heliotropium gibbosum M. Friedr. (Hb.L.B.SgHl)
,, nelsonii C. H. Wright (Hb.L.B.SgHl)
,, ovalifolium Forsk. (Hb.LM.B.MzMkSg)
,, strigosum Willd. (Hb.L.B.Sg)
7056. Trichodesma physaloides A.DC. (Hb.M.G.MbHl)
,, zeylanicum (Burm.f.) R.Br. (Hb.LM.B.MkHl)
7064. Cynoglossum enerve Turcz. (Hb.MH.G.MbHl)
,, micranthum Desf. (Hb.H.S.Mb)
7109. Lithospermum afromontanum Weimarck (Hb.H.F.Mb)
,, papillosum Thbg (Hb.H.G.MbMk)

Verbenaceae

7138. Verbena tenuisecta Briq. (W.H.G.Mk)
7144. Lantana montevidensis (Spreng.) Briq. (Sb.H.G.Hl)
,, rugosa Thbg (Sb.LMH.BG.MbSgHl)
,, trifolia L. (Sb.MH.BG.MbMzHl)
7145. Lippia asperifolia Rich (Sb.MH.G.MbMz)
,, javanica (Burm.f.) Spreng. (Sb.LM.B.MzHl)
,, nodiflora (L.) Michx (Hb.L.S.Sg)
7148. Chascanum hederaceum (Sond.) Moldenke (Hb.LM.B.MbMzSgHl)
,, latifolium (Harv.) Moldenke var. glabrescens (Pearson) Moldenke (Hb.MH.G.MbHlPp)
,, schlechteri (Guerke) Moldenke (Hb.M.R.Sg)
7153. Priva meyeri Jaub. & Spach (Hb.LMH.BG.MbMzSgHl)
7185. Premna mooiensis (Pearson) Pieper (Sb.LMH.B.SgHl)

7186. Vitex harveyana Pearson (Sb.L.BS.MzSg)
„ *rehmannii Guerke
„ wilmsii Guerke sens. lat. (Sb.LMH.B.MkSgHl)
7191. Clerodendrum glabrum E. Mey. (Sb.LMH.B.MbMzMkSgHl)
„ myricoides (Hochst.) Vatke ? var. cuneatum Pearson (Sb.H.S.Mk)
„ triphyllum (Harv.) Pearson (Hb.LMH.BG.MbMzSgHl)
7192. Holmskioldia tettensis Vatke (Sb.L.B.SgHl)

LABIATAE

7212. Teucrium riparium Hochst. (Hb.MH.G.MbSgHl)
7213. Tinnea galpinii Briq. (Hb.MH.G.SgHl)
„ sp. cf. rogersii Rob. & Lebrum (Sb.L.F.Pp)
7236 Acrotome hispida Benth. (Hb.LMH.BG.MbMzMk)
„ inflata Benth. (Hb.L.B.Mz)
7264. Leonotis dubia E. Mey. (Hb.MH.G.MbPp)
„ dysophylla Benth. (Hb.MH.G.MbMk)
„ latifolia Guerke (Hb.MH.G.MbSg)
„ laxifolia MacOwan (Hb.H.F.Pp)
7268. Leucas glabrata R.Br. (Hb.L.B.SgHl)
„ martinicensis R.Br. (W.LMH.G.MbMz)
„ neuflizeana Courb. (Hb.LMH.BG.MbMzMkSgHl)
7268A. Lasiocorys capensis Benth. (Hb.L.B.Hl)
7281. Stachys aethiopica L. (Hb.MH.GSB.MbSgHlPp)
„ cooperi Skan (Hb.H.F.Mb)
„ galpinii Briq. (Hb.H.R.Mb)
„ grandifolia E. Mey. (Hb.H.G.MbPp)
„ nigricans Benth. (Hb.H.GS.Mb)
„ rehmannii Skan (Hb.H.GS.MbPp)
„ nr. rudatisii Skan (Hb.H.S.Mb)
„ simplex Schltr (Hb.H.G.Mb)
„ tubulosa Macowan (Hb.H.F.Mb)
„ sp. (C.28304) (Hb.H.S.Mb)
7290. Salvia galpinii Skan (Hb.H.F.Mb)
7328. Mentha aquatica L. (Hb.H.S.Mb)
„ longifolia Huds. (Hb.MH.S.MbMz)
7342. Hyptis pectinata Poir. (Hb.MH.S.MbMkHl)
„ spicigera Lam. (Hb.M.S.Mb)
7345. Aeolanthus canescens Guerke (Hb.LMH.R.MbSg)
„ parvifolius Benth. (Hb.MH.R.MbSg)
„ rehmannii Guerke (Hb.LMH.R.MbSg)
7345A. Endostemon obtusifolius (E. Mey. ex Benth.) N.E.Br. (Hb.LMH.B.MbMkSgHlPp)
7347. Pycnostachys reticulata (E. Mey.) Benth. (Hb.LH.S.MbMzPp)
„ urticifolia Hook.
7350. Plectranthus cf. arthropodus Briq. (Hb.H.F.MbPp)
„ calycinus Benth. (Hb.H.G.MbPp)
„ ciliatus E. Mey. (Hb.H.F.Pp)
„ cylindraceus Hochst. ex Benth. (Suc.LM.BR.Sg)
„ ecklonii Benth. (Hb.H.F.Mb)
„ fruticosus L'Hérit. (Sb.MH.FG.MbMkPp)
„ grandidentatus Guerke (Hb.H.G.MbMk)

Plectranthus laxiflorus Benth. (Hb.H.S.MbMkPp)
„ madagascariensis (Pers.) Benth. (Hb.MH.GR.MbMkHl)
„ nummularis Briq. (Hb.LMH.BSR.MbMzMkSgHl)
„ spicatus E. Mey. (Suc.LH.BG.MbSgHl)
„ strigosus Benth. (Hb.H.G.MbMk)
„ tomentosus Benth. (Hb.MH.G.MbHlPp)
„ tysonii Guerke (Hb.H.R.MbPp)

7355. Coleus amboinicus Lour. (Hb.L.B.Hl)
„ decumbens Guerke (Hb.L.B.SgHl)

7357. Hoslundia opposita Vahl (Hb.LM.B.MzSgHl)

7357A. Iboza galpinii N.E.Br. (Sb.H.G.MbMkHl)
„ riparia (Hochst.) N.E.Br. (Sb.LM.B.MzMkHl)

7359. Syncolostemon nr. argenteus N.E.Br. (Hb.M.B.Mb)
„ lanceolatus Guerke (Hb.H.G.Mb)
„ parviflorus E. Mey. ex Benth. (Hb.H.GS.MbMkHlPp)

7363. Geniosporum angolense Briq. (Hb.H.S.MbMk)

7365. Hemizygia canescens (Guerke) Ashby (Hb.LMH.SgHlPp)
„ foliosa S. Moore (Hb.MH.G.MbMz)
„ pretoriae (Guerke) Ashby (Hb.LMH.G.MbMkHl)
„ rehmannii (Guerke) Ashby (Hb.H.R.Mb)
„ thorncroftii (N.E.Br.) Ashby (Hb.H.G.MbMkPp)
„ sp. nov. (C.29123) (Hb.H.G.Pp)

7366. Ocimum americanum L. (Hb.L.B.Hl)
„ urticifolium Roth (Hb.LM.B.MbMz)

7366A. Becium knyanum (Vatke) G. Taylor (Hb.LM.B.Hl)
„ obovatum (E. Mey. ex Benth.) N.E.Br. (Hb.MH.G.MbMzMkHlPp)
„ „ „ „ var. galpinii (Guerke) N.E.Br. Hb.H.G. Mb)

7367. Orthosiphon australis Vatke (Hb.LM.B.MkSgHl)
„ labiatus N.E.Br. (Sb.LH.BG.MzMk)
„ serratus Schltr (Hb.LM.B.MbMzHlPp)
„ sp. (C.29167) (Hb.M.B.Mk)

7367A. Thorncroftia thorncroftii (S. Moore) L. E. Codd (Hb.H.R.Pp)

Solanaceae

7377. Nicandra physaloides (L.) Gaertn. (W.H.G.Mb)

7379. Lycium cf. albiflorum Damm. (Sb.L.B.Hl)

7400. Withania somnifera Dunal (Sb.H.G.MbHl)

7407. Solanum acanthoideum E. Mey. (Sb.M.B.Sg)
„ bifurcum Hochst. (C.H.F.Mb)
„ capense L. (Sb.H.G.Mk)
„ coccineum Jacq. (Sb.LM.B.SgHl)
„ giganteum Jacq. (Sb.MH.BG.MbSg)
„ incanum L. (Sb.L.B.SgHl)
„ indicum L. (Sb.MH.BF SgPp)
„ mauritianum Scop. (Sb.H.GS.Pp)
„ melongena L. (Hb.LH.G.Hl)
„ nigrum L. complex (Hb.H.G.Pp)
„ „ „ var. laciniatum (Hb.H.G.Mb)
„ panduraeforme E. Mey. (Sb.LMH.BG.MbMkSgHlPp)

Solanum seaforthianum Andr. (C.L.B.Hl)
„ sp. (C.28584) (C.L.B.Hl)
7420. Cestrum aurantiacum Lindl. (W.H.G.Mb)

SCROPHULARIACEAE

7467. Aptosimum calycinum (N.E.Br.) Phill. (Sb.LH.BG.MkHl)
7476. Nemesia capensis (Thbg) Kunze (Hb.H.S.Mb)
„ melissaefolia Benth. (Hb.H.FS.MbHl)
7477. Diclis reptans Benth. (Hb.H.SG.Mb)
7493. Halleria lucida L. (T.H.FG.Mb)
7494. Teedia lucida Rud. (Sb.H.G.Mb)
7495. Phygelius aequalis Harv. (Hb.H.S.Mb)
7500. Bowkeria cymosa Macowan (Sb.H.FS.MbPp)
7517. Manulea parviflora Benth. (Hb.LH.BG.MkSg)
7519. Sutera brunnea Hiern. (Hb.L.B.Hl)
„ campanulata O.K. (Hb.H.S.Mb)
„ floribunda O.K. (Hb.H.G.Mb)
„ grandiflora Hiern. (Hb.MH.G.MbHlPp)
„ micrantha Hiern. (Hb.LM.BS.Mz)
„ racemosa (Benth.) O.K. (Hb.H.G.Mb)
7522. Polycarena sp. (C.25351) (Hb.H.G.Mb)
„ sp. (C.25376) (Hb.H.G.Mb)
„ sp. (C.26769) (Hb.H.G.Mb)
„ sp. (C.29961) (Hb.H.S.Mb)
7523. Zaluzianskya maritima Walp. (Hb.H.G.Mb)
„ sp. (C.25262) (Hb.H.G.Mb)
7524. Mimulus gracilis R.Br. (Hb.L.S.MzSgHl)
7564. Ilysanthes schlechteri Hiern (Hb.M.R.Sg)
„ wilmsii Engl. (Hb.MH.R.Mb)
7566. Hebenstreitia comosa Hochst. (Hb.H.G.MbMk)
„ elongata Bolus (Hb.H.G.Mb)
„ polystachya Harv. ex Rolfe (Hb.H.GS.MbPp)
7568. Selago compacta Rolfe (Hb.H.G.MbPp)
„ elata Rolfe (Hb.H.GS.Pp)
„ hyssopifolia E. Mey. (Hb.H.G.MbPp)
„ longituba Rolfe (Hb.H.G.Pp)
„ natalensis Rolfe (Hb.MH.G.MbMkSgHl)
„ swaziensis Rolfe (Hb.H.G.Mb)
„ wilmsii Rolfe (Hb.H.G.Mb)
7597. Melasma scabrum Berg. (Hb.H.S.Mb)
7597A. Alectra capensis Thbg (P.H.G.Mb)
„ mundtii Melch. (P.H.S.Mb)
„ sessiliflora (Vahl) O.K. (P.H.G.MbMkHlPp)
„ ? vogelii Benth. (P.H.G.Mb)
7605. Gerardiina angolensis Engl. (Hb.H.S.Mb)
7611. Buttonia natalensis McKen (C.L.B.Hl)
„ superba Oberm. (C.L.B.SgHl)
7614. Graderia scabra Benth. (Hb.LMH.BGS.MbSgHlPp)
7616. Sopubia cana Harv. (Hb.H.G.Mb)
„ fastigiata Hiern (Hb.MH.G.MbSg)

Sopubia mannii Skan var. tenuifolia (Engl. & Gilg) Hepper (Hb.H.S.Mb)
„ simplex Hochst. (Hb.H.GS.Mb)
7622. Buchnera dura Benth. (Hb.H.G.MbPp)
„ reducta Hiern (Hb.L.B.Sg)
7623. Cycnium adonense E. Mey. (Hb.LMH.BG.MbMzSgHl)
„ racemosum Benth. (Hb.H.GS.MbPp)
7624. Rhamphicarpa tubulosa (L.f.) Benth. (Hb.LM.S.MzSg)
7625. Striga bilabiata O.K. (P.LMH.GSB.MbMzSg)
„ elegans Benth. (P.LMH.G.MbMzHl)
„ forbesii Benth. (P.L.S.Mz)
„ gesnerioides (Willd.) Vatke (P.L.BR.Pp)
7627. Harveya coccinea Schltr (P.H.FG.MbHlPp)
„ speciosa Bernh. (P.H.G.Mb)

Bignoniaceae

7713. Tecomaria capensis Spach (C.L.B.SgHl)
7722. Rhigozum zambesiacum Baker (Sb.L.B.Hl)
7761. Kigelia pinnata DC. (T.LM.B.MzMk)

Pedaliaceae

7769. Pterodiscus aurantiacus Welw. (Hb.L.B.Sg)
7778. Ceratotheca triloba E. Mey. (Hb.MH.BG.MbMz)
7780. Dicerocaryum zanguebarium (Lour.) Merrill (Hb.L.B.Pp)

Gesneriaceae

7823. Streptocarpus nr. comptonii Mansfeld (E.H.F.Mk)
„ cyaneus S. Moore (E.H.F.MbPp)
„ davyi S. Moore (Hb.H.G.Mb)
„ dunnii Hook.f. (Hb.H.G.Mb)
„ galpinii Hook.f. (Hb.H.GR.MbPp)
„ micranthus C.B.Cl. (Hb.H.F.Pp)
„ wilmsii Engl. (E.H.F.MbPp)
„ sp. (C.25340) (Hb.H.R.Mb)
„ sp. (C.26789) (Hb.H.R.Mb)
„ sp. (C.27592) (Hb.H.G.Mb)

Lentibulariaceae

7901. Utricularia inflexa Forsk. var. stellaris (L.f.) P. Taylor (A.L.S.Hl)
„ livida E. Mey. (Hb.H.S.Mb)
„ prehensilis E. Mey. (Hb.H.S.Mb)

Acanthaceae

7914. Thunbergia atriplicifolia E. Mey. (Hb.H.G.MbPp)
„ bachmannii Lindau (Hb.MH.GS.MbMzSg)
„ dregeana Nees (Hb.L.B.MbSgHl)
„ natalensis Hook. (Hb.MH.B.MkSg)
„ neglecta Sond. (Hb.L.B.Hl)
7926. Hygrophila auriculata (Schumach.) Heine (Hb.L.S.MzSg)
7932. Phaulopsis imbricata (Forsk.) Sweet (Hb.LM.BS.MzMkSgHlPp)
7939. Dyschoriste rogersii S. Moore (Sb.L.B.Sg)

7941. Chaetacanthus burchellii Nees (Hb.LMH.BG.MzSgHlPp)
,, setiger (Pers.) Lindl. (Hb.MH.G.MkHl)
7965. Ruellia cordata Thbg (Hb.L.B.Hl)
,, patula Jacq. (Hb.LM.B.MzSgHl)
,, stenophylla C.B.Cl. (Hb.M.B.SgPp)
7971. Lepidagathis scabra C.B.Cl. (Hb.L.B.Sg)
7972. Crabbea acaulis N.E.Br. (Hb.L.B.Mz)
,, hirsuta Harv. (Hb.LMH.BG.MbMzSgPp)
,, nana Nees (Hb.H.R.Mb)
,, robusta N.E.Br. (Hb.MH.G.MbSgHlPp)
,, velutina S. Moore (Hb.H.G.Mb)
7973. Barleria crossandriformis C.B.Cl. (Sb.L.B.Hl)
,, elegans S. Moore (Sb.L.B.MzSgHl)
,, gueinzii Sond. (C.LM.B.MbMkMzHlPp)
,, lancifolia T.And. (Hb.M.B.Sg)
,, meyeriana Nees (Hb.LMH.BG.MbMkHl)
,, monticola Oberm. (Hb.H.G.Mb)
,, obtusa Nees (C.LMH.BG.MbMzSgHlPp)
,, ovata E. Mey. ex Nees (Hb.MH.G.MbMzHl)
,, prionitis L. (Sb.L.B.Hl)
,, saxatilis Oberm. (Sb.M.B.Sg)
7978. Sclerochiton harveyanus Nees (Sb.H.F.MbHl)
7980. Blepharis transvaalensis Schinz (Sb.L.B.Hl)
,, sp. (C.31217) (Sb.M.B.Sg)
7985. Crossandra fruticulosa Lindau (Sb.L.B.SgHl)
,, greenstockii S. Moore (Hb.LMH.BG.MbSgHlPp)
8007. Asystasia gangetica (L.) T.And. (Hb.M.B.Mz)
,, ? natalensis C.B.Cl. (Hb.M.B.Sg)
,, sp. (C.26233) (Hb.H.G.Hl)
8026. Peristrophe cernua Nees (Hb.L.B.Sg)
8030. Macrorungia longistrobus C.B.Cl. (Sb.L.B.Sg)
8031. Dicliptera clinopodia Nees (Hb.LMH.BS.MbMzMkSgHlPp)
,, heterostegia Presl (Hb.H.S.Pp)
,, mossambicensis Klotzsch (Hb.L.B.Sg)
,, sp. (C.28614) (Hb.L.B.Hl)
8032. Hypoestes aristata R.Br. (Sb.LMH.BF.MbMkSgHl)
,, phalopsoides S. Moore (Hb.H.F.MbHlPp)
,, cf. triflora Roem. & Schult. (Hb.H.F.Mb)
,, verticillaris R.Br. (Hb.LMH.BFG.MbMzMkSgHlPp)
8039. Mackaya bella Harv. (Sb.H.F.MbHlPp)
8048. Ecbolium amplexicaule S. Moore (Sb.L.B.SgHl)
8054. Rhinacanthus gracilis Klotzsch (Hb.LH.B.MzSgHl)
8055. Duvernoia aconitiflora A. Meeuse (Sb.L.B.Hl)
8063. Ruttya ovata Harv. (Sb.LMH.B.MbMzSgHl)
8079. Isoglossa ciliata (Nees) Lindau (Hb.L.BS.Hl)
,, eckloniana (Nees) Lindau (Hb.H.FS.Mb)
,, grantii C.B.Cl. (Hb.LM.B.Sg)
8094. Justicia anagalloides (Nees) T.And. (Hb.MH.G.MbMkSg)
,, betonica L. (Hb.LH.BG.MbMz)
,, betonicoides C.B.Cl. (Hb.M.B.SgHl)

Justicia campylostemon T.And. (Sb.H.F.MbHlPp)
„ cheiranthifolia C.B.Cl. (Hb.MH.BG.MbSgHlPp)
„ flava Vahl (Hb.L.B.MzSgHl)
„ petiolaris E. Mey. (Hb.L.BS.Sg)
„ protracta (Nees) T.And. (Sb.LMH.B.MbMkSgHlPp)

8094A. Monechma debile (Forsk.) Nees (Hb.LM.B.MzSgHl)
„ fimbriatum C.B.Cl. (Hb.L.B.Hl)

PLANTAGINACEAE

8116. Plantago dregeana Presl (Hb.MH.S.MbMkMz)

RUBIACEAE

8136. Oldenlandia affinis (R. & S.) DC. (Hb.MH.G.MbPp)
„ cephalotes (Hochst.) O.K. (Hb.H.S.Mb)
„ herbacea (L.) Roxb. (Hb.H.GR.Mb)
„ rupicola (Sond.) O.K. var. psilogyna Bremekamp (Hb.H.R.Mb)

8136(6). Kohautia amatymbica E. & Z. (Hb.MH.G.MbHl)
„ cynanchica DC. (Hb.LM.MbMkMzSgHl)

8136(7). Conostomium natalense (Hochst.) Bremekamp (Hb.H.G.Mb)

8136(14). Agathisanthemum bojeri Klotzsch ssp. australe Bremekamp (Hb.L.B.MzSgHlPp)

8145. Pentodon pentandra (Schum.) Vatke (Hb.L.S.MzSgHl)

8154. Pentas micrantha Bak. ssp. wyliei N.E.Br. (Hb.L.FS.MzSgPp)

8226. Adina microcephala (Del.) Hiern var. galpinii (Oliv.) Hiern (T.L.S.MkSgPp)

8230. Cephalanthus natalensis D.Oliv. (Sb.H.G.MbMk)

8278. Tarenna barbertonensis Brem. (T.L.B.MbMzSgHl)

8281. Burchellia bubalina (L.f.) Sims (T.H.G.Mb)

8283A. Xeromphis obovata (Hochst.) Keay (Sb.LM.B.MzSgHl)
„ rudis (E. Mey. ex Harv.) L. E. Codd (Sb.LM.B.MzSgHlPp)

8285. Gardenia cornuta Hemsl. (Sb.L.B.MzHl)
„ gerrardiana Harv. & Sond. (Sb.M.S.Mk)
„ neuberia E. & Z. (T.LM.SR.MzSgHl)
„ spatulifolia Stapf & Hutch. (T.LM.B.Sg)

8285A. Rothmannia capensis (Thbg) Druce (T.H.GR.MbHl)
„ globosa (Hochst.) Keay (Sb.H.F.Pp)

8293. Oxyanthus gerrardii Sond. (T.L.F.Pp)

8308. Tricalysia capensis (Meissn.) Sim (Sb.H.FR.MbPp)
„ galpinii Schinz (Sb.H.G.MbMk)
„ lanceolata (Sond.) Burtt Davy (T.MH.G.MkSgHl)

8308A. Kraussia schlechteri (K. Schum.) Bullock (Sb.LM.S.MkMzSgHl)

8348. Pentanisia angustifolia (Hochst.) Hochst. (Hb.MH.G.MbMkMzHl)
„ prunelloides (Klotzsch ex E. & Z.) Walp. (Hb.MH.G.MbMkMzSgHl)
„ „ „ „ „ ssp. latifolia (Hochst.) Verdcourt (Hb.H.G.Mb)

8351. Vangueria cyanescens Robyns (T.L.B.MzSgPp)
„ infausta Burch. (T.LMH.BG.MbMkMzPp)

8351B. Pygmaeothamnus chamaedendrum (O.K.) Robyns (Sb.H.G.Pp)

8351D. Rytigynia sp. (C.26399) (T.H.G.Hl)

8352. Canthium ciliatum (Sond.) O.K. (Sb.H.G.MbPp)
„ gueinzii Sond. (T.LMH.F.MbPp)
„ huillense Hiern (T.H.G.MbHl)

Canthium inerme (L.f.) O.K. (T.MH.FG.MbMkSgHlPp)
„ mundtianum Ch. & Sch. (T.LM.B.SgHl)
„ obovatum Klotzsch (T.H.G.Pp)
„ subserrosum L. E. Codd ms. (Sb.H.G.Hl)

8352A. Plectroniella armata (K. Schum.) Robyns (Sb.L.B.MzHl)

8352B. Dinocanthium hystrix Bremekamp (Sb.L.B.SgHl)

8359. Pachystigma latifolium Sond. (Hb.H.G.Mb)
„ macrocalyx (Sond.) Robyns (T.H.G.MbHl)
„ pygmaeum (Schltr) Robyns (Sb.H.G.MbPp)

8359A. Fadogia monticola Robyns (Hb.H.G.Mb)
„ tetraquetra K. Krause (Hb.MH.G.Mb)

8383. Pavetta barbertonensis Bremekamp (Sb.MH.FB.SgPp)
„ breyeri Bremekamp (Sb.L.B.Hl)
„ cooperi Harv. & Sond. (Sb.H.G.MbHl)
„ edentula Sond. (T.LMH.BG.MbMzSg)
„ gracilifolia Bremekamp (Sb.L.B.Sg)
„ schumanniana F. Hoffm. ex K. Schum. (Sb.L.B.MzHl)
„ zeyheri Sond. (Sb.LH.G.MzHl)

8402. Psychotria capensis (Eckl.) Vatke (T.MH.FG.MbMkPp)

8435. Galopina circaeoides Thbg (Hb.H.FG.MbHlPp)
„ nr. crocylloides Baer. (Hb.H.GS.MbPp)

8438. Anthospermum herbaceum L.f. (Hb.H.G.MbPp)
„ hispidulum E. Mey. (Sb.H.R.MbPp)
„ rigidum E. & Z. (Sb.LH.G.MbMz)
„ sp. (C.25722) (Sb.H.R.Mb)

8450. Otiophora cupheoides N.E.Br. (Sb.H.R.MbPp)

8464. Richardia brasiliensis Gomez (W.H.G.Mb)

8471. Diodia natalensis (Hochst.) Garcia (Hb.LMH.GS.MbMz)

8473. Borreria scabra (Schum. & Thonn.) K. Schum. (Hb.LMH.GB.MbMzSg)

8486. Galium gariepense Sond. (C.H.G.Mb)
„ rotundifolium L. (C.H.G.Mb)

8489. Rubia cordifolia L. (C.MH.BG.MbHlPp)
„ petiolaris DC. (C.H.G.Hl)

Valerianaceae

8532. Valeriana capensis Thbg (Hb.H.S.Mb)

Dipsacaceae

8541. Cephalaria attenuata R. & S. (Hb.H.GS.MbHl)
„ ustulata R. & S. (Hb.MH.GS.MbSgPp)
„ sp. (C.25393) (Hb.H.G.Mb)
„ sp. (C.26807) (Hb.H.S.MbMk)
„ sp. (C.29326) (Hb.H.S.Mb)

8546. Scabiosa columbaria L. sens. lat. (Hb.MH.G.MbSg)

Cucurbitaceae

8562. Melothria cinerea (Cogn.) A. Meeuse (C.H.G.Mb)
„ cordata (Thbg) Cogn. (C.H.GF.Mb)
„ marlothii Cogn. (C.H.F.MbPp)

8568. Kedrostis foetidissima (Jacq.) Cogn. ssp. obtusiloba (Sond.) A. Meeuse (C.L.B.Hl)

8591. Momordica clematidea Sond. (C.L.B.Mz)
„ foetida Schumach. & Thonn. (C.H.S.MbMzHl)
„ involucrata E. Mey. ex Sond. (C.L.B.Hl)
8593. Raphanocarpus boivinii (Baill.) Chiov. (C.L.B.Mz)
8599. Cucumis africanus L.f. (C.H.G.MbMkPp)
„ hirsutus Sond. (C.H.G.Mk)
„ naudinianus Sond. (C.L.B.Sg)
8608. Trochomeria hookeri Harv. (C.H.G.Mb)
„ macrocarpa (Sond.) Hook.f. (C.L.B.Sg)
„ sagittata (Harv.) Cogn. (C.M.B.MbPp)
8628. Coccinia adoensis (T. Rich) Cogn. (C.H.G.Mb)
„ ? palmata (Sond.) Cogn. (C.H.GF.MbPp)
„ rehmannii Cogn. (C.L.B.MzHl)
„ „ „ var. littoralis A. Meeuse (C.H.F.Mb)

CAMPANULACEAE

8668. Wahlenbergia banksiana A.DC. (Hb.H.G.Mb)
„ caledonica Sond. (Hb.LM.B.SgPp)
„ epacridea Sond. (Hb.H.G.Mk)
„ madagascariensis A.DC. (Hb.H.F.MbPp)
„ montana A.DC. (Hb.H.G.Mb)
„ squamifolia v.Brehm (Hb.H.R.Mb)
„ undulata A.DC. (Hb.H.G.Mb)
„ virgata Engl. (Hb.H.G.Mb)
„ sp. (C.25723) (Hb.H.GR.MbMk)
„ sp. (C.27683) (Hb.H.G.Pp)
8670. Lightfootia huttonii Sond. (Hb.H.G.Mb)
8681. Cyphia bolusii Phillips (Hb.MH.GS.MbMzPp)
„ elata Harv. sens. lat. (Hb.MH.GS.MbMkMzSgPp)
8694. Lobelia decipiens Sond. (Hb.LMH.GS.MbMzHl)
„ erinus L. (Hb.L.B.Sg)
„ eurypoda Wimm. (Hb.H.GR.Mb)
„ filiformis Lam. (Hb.LMH.G.MbMzSgPp)
„ „ „ var. krebsiana (Presl) Wimm. (Hb.H.G.Mb)
„ „ „ var. natalensis (A.DC.) Wimm. (incl.f. albiflora Wimm.) (Hb.LMH.BG.MbHlSg)
„ malowensis Wimm. (Hb.H.F.Pp)
„ pteropoda (Presl) A.DC. (Hb.H.F.Mb)
, thermalis Thbg (Hb.L.S.Sg)
„ sp. (C.25727) (Hb.H.G.Mb)
„ sp. (C.25809) (Hb.H.FS Mb)

COMPOSITAE

8734. Ethulia conyzoides L. (Hb.LM.S.MzHl)
8740. Erlangea laxa (N.E.Br.) S. Moore (W.MH.G.Mb)
8751. Vernonia ampla O. Hoffm. (Sb.MH.BG.MbMk)
„ amygdalina Del. (Sb.L.S.Hl)
„ colorata (Willd.) Drake (T.L.S.SgHlPp)
„ corymbosa Less. (Hb.H.GS.MbSg)
„ crataegifolia Hutch. (Hb.LMH.BG.MkMzSg)

Vernonia dregeana Sch. Bip. (Hb.M.B.Mk)
„ fastigiata Oliv. & Hiern (Hb.LM.B.MzSgHl)
„ gerrardii Harv. (Hb.H.G.MkHl)
„ glabra Vatke (Hb.LM.BS.MzHl)
„ hirsuta Sch. Bip. (Hb.MH.G.MbMkMz)
„ mespilifolia Less. (Hb.H.F.Hl)
„ monocephala Harv. (Hb.HG.MbHl)
„ natalensis Sch. Bip. (Hb.LH.G.MbMkMz)
„ oligocephala (DC.) Sch. Bip. ex Walp. (Hb.MH.G.MbMzSgHl)
„ pinifolia Less. (Hb.MH.G.MbMkHl)
„ poskeana Vatke & Hildebr. var. chlorolepis (Steetz) O. Hoffm. (Hb.LH.BG MbSg)
„ shirensis Oliv. & Hiern (Sb.H.G.Mb)
„ sutherlandii Harv. (Hb.LMH.BG.MbMzSgHlPp)
„ umbratica Oberm. (Sb.H.F.MbPp)

8785. Adenostemma caffrum DC. (Hb.H.S.MbMkPp)
8795. Ageratum conyzoides L. (Hb.LMH.BG.MbMzMkSgHlPp)
8816. Eupatorium africanum Oliv. & Hiern (Hb.H.G.MbPp)
8818. Mikania cordata (Burm.f.) Robins. (C.MH.FB.MbSgHlPp)
8866. Dichrocephala integrifolia (L.f.) O.K. (W.H.G.Mb)
8900. Aster bakerianus Burtt Davy ex S.A.Sm (Hb.MH.GS.MbMz)
„ harveyanus O.K. (Hb.LMH.GB.MbMzHl)
„ luteus (N.E.Br) Hutch. (Sb.LMH.G.MbMkMzHl)
„ muricatus Less. (Sb.H.G.Mb)
„ peglerae Bolus (Hb.H.GS.Mb)
„ pleiocephalus (Harv.) Hutch. (Hb.M.B.Hl)
„ quinquenervis Klatt (Hb.H.G.MbPp)
„ subulatus Michx. (Hb.M.B.Hl)
8901. Erigeron floribundus (H.B.K.) Sch. Bip. (Hb.H.S.Mb)
8919. Felicia smaragdina (S. Moore) Merxm. (Hb.M.G.Mb)
8925. Nidorella anomala Steetz (Hb.H.GS.MbHl)
„ auriculata DC. (Hb.LMH.BGS.MbMkHl)
„ resedaefolia DC. (Hb.LMH.BG.Hl)
8926. Conyza aegyptiaca (L.) Ait. (Hb.H.G.Mb)
„ gouanii Willd. (Hb.H.F.Pp)
„ hochstetteri Sch. Bip. (Hb.MH.G.Mb)
„ ivaefolia Less. (Sb.H.S.Mb)
„ obscura DC. (Hb.MH.G.MbMz)
„ persicaefolia (Benth.) Oliv. & Hiern (Sb.LM.B.SgHl)
„ pinnata (L.f.) O.K. (Hb.H.GS.MbHl)
„ podocephala DC. (Hb.H.S.Hl)
„ ulmifolia (Burm.) O.K. (Hb.H.S.Mb)
8929. Nolletia rarifolia Steetz (Hb.M.G.Mb)
8936. Brachylaena *? discolor DC.
„ ilicifolia (Lam.) Phillips & Schweickerdt (T.L.B.Hl)
„ transvaalensis Phillips & Schweickerdt (T.H.GF.Mb)
8937. Tarchonanthus camphoratus L. (T.LMH.B.MzSgHl)
„ galpinii Hutch. & Phillips (T.LM.B.MbMzSg)
8939. Blumea caffra (DC.) O. Hoffm. (Hb.L.B.Mz)
„ lacera DC. (Hb.H.G.Mb)

8940. Laggera alata Sch. Bip. (Hb.MH.BG.MbMzMk)
8941. Pluchea dioscoridis (L.) DC. (Sb.L.BS.MzSg)
8949. Denekia capensis Thbg (Hb.LH.S.MbMz)
8953. Epaltes gariepina (DC.) Steetz (Hb.L.B.MzHl)
8955. Sphaeranthus incisus Robyns (Hb.L.S.MzSg)
8992. Gnaphalium cf. parvulum Harv. (Hb.H.G.Mb)
„ purpureum L. (W.H.G.Mb)
„ undulatum L. (Hb.LMH.GS.MbHl)
8994. Cassinia phylicaefolia (DC.) Medl. Wood (Sb.H.G.Mb)
9006. Helichrysum acutatum DC. (Hb.MH.G.MbMzPp)
„ adenocarpum DC. (Hb.H.G.MbMkPp)
„ adscendens (Thbg) Less. (Hb.LMH.G.MbMzHl)
„ „ „ „ var. cephaloideum (DC.) Moeser (Hb.H.G.Mb)
„ appendiculatum (L.f.) Less. var. discolor (DC.) Harv. (Hb.H.S.Mb)
„ ? argyrolepis Macowan (Sb.H.G.Mb)
„ aureo-nitens Sch. Bip. (Hb.H.G.Mb)
„ caespititium Sond. (Sb.H.G.MbHl)
„ chionosphaerum DC. (Sb.H.R.Mb)
„ chrysargyrum Moeser (Hb.H.G.Mb)
„ cooperi Harv. (Hb.H.S.Mb)
„ davyi S. Moore (Hb.H.G.Mb)
„ elegantissimum DC. (Hb.H.G.MbPp)
„ fulgidum (L.) Willd. var. monocephalum DC. (Hb.M.G.Sg)
„ galpinii N.E.Br. (Sb.H.R.Mb)
„ inerme Moeser (Hb.H.S.Mb)
„ latifolium (Thbg) Less. (Hb.MH.G.Mb)
„ lepidissimum S. Moore (Sb.H.G.MbPp)
„ leptolepis DC. (Hb.M.G.Mk)
„ marginatum DC. (Hb.H.G.Mb)
„ melanacme DC. (Hb.H.GS.Mb)
„ miconiaefolium DC. (Hb.H.GS.MbMkHl)
„ mixtum O. Hoffm. (Hb.M.G.MbSg)
„ mundtii Harv. (Hb.H.S.Mb)
„ nanum Klatt (Sb.H.R.Mb)
„ nudifolium (L.) Less. var. leiopodium (DC.) Moeser (Hb.H.G.MbMk)
„ „ „ „ var. quinquenerve (Thbg) Moeser (Hb.MH.G.Mb Pp)
„ odoratissimum (L.) Less. (Hb.H.G.MbPp)
„ orbiculare (Thbg) Druce (Hb.H.S.Pp)
„ oreophilum Klatt (Hb.H.G.Mb)
„ ? panduratum O. Hoffm. (Hb.MH.G.SgPp)
„ platypterum DC. (Hb.H.G.Pp)
„ polycladum Klatt (Hb.H.G.Mb)
„ reflexum N.E.Br. (Sb.H.R.MbPp)
„ rugulosum Less. (Sb.LM.GB.MbMzHl)
„ schlechteri Bolus (Hb.H.G.Mb)
„ setosum Harv. (Hb.MH.G.MbMkPp)
„ splendidum (Thbg) Less. (Sb.H.G.MbPp)
„ stenopterum DC. (Hb.H.S.Mb)
„ thapsus O. Hoffm. (Hb.H.G.Mb)

Helichrysum truncatum Burtt Davy (Hb.H.S.Mb)
„ undatum Less. (Hb.H.S.Mb)
„ „ „ var. agrostophilum (Klatt) Moeser (Hb.LH.GS.MbHl)
„ wilmsii Moeser (Hb.H.G.MbPp)
„ sp. (C.27066) (Hb.MH.G.Pp)

9008. Leontonyx tomentosus Cass. (Sb.H.G.Mb)
9037. Stoebe vulgaris Levyns (Sb.H.G.Mb)
9055. Athrixia elata Sond. (Hb.H.R.Mb)
„ phylicoides DC. (Sb.MH.G.MbSgPp)
9069. Calostephane divaricata Benth. (Hb.L.B.Hl)
9073. Pegolettia senegalensis Cass. (Hb.L.B.Hl)
9078. Pulicaria scabra (Thbg) Druce (Hb.LH.S.MbMzPp)
9090. Geigeria burkei Harv. ssp. burkei var. elata Merxm. (Sb.LMH.BG.MkMzSgPp)
9094. Callilepis laureola DC. (Hb.LM.BG.MkMzSgHlPp)
„ leptophylla Harv. (Hb.H.G.Mb)
„ salicifolia Oliv. (Hb.MH.G.MkMz)
9096. Anisopappus smutsii Hutch. (Sb.H.G.MbMk)
9103. Acanthospermum australe (Loef.) O.K. (W.M.G.Mz)
„ hispidum DC. (W.L.B.MzHl)
9148. *Xanthium spinosum L. (W.)
9155. Zinnia peruviana (L.) L. (W.L.B.Sg)
9166. Eclipta prostrata (L.) L. (Hb.L.S.Mz)
9204. Melanthera scandens (Schumach. & Thonn.) Roberty (Hb.LMH.S.MbMz)
9207. Spilanthes mauritiana (Rich ex Pers.) DC. (Hb.MH.S.MbMz)
9237. Bidens bipinnata L. (Hb.H.G.Mb)
„ *pilosa L. (W.)
9246. Galinsoga parviflora Cav. (W.H.G.Mb)
9282. Flaveria bidentis (L.) O.K. (Hb.L.B.Hl)
9291. Schkuhria bonariensis H. & A. (W.)
9311. *Tagetes minuta L. (W.)
9323. Eumorphia sp. nov. (C.29963) (Sb.H.G.Mb)
9326. Athanasia acerosa Harv. (Sb.H.GS.MbPp)
„ calva Hutch. (Sb.H.G.Mb)
„ punctata Harv. (Sb.H.G.MbPp)
„ thodei Bolus (Sb.H.G.Mb)
9337A. Inezia integrifolia (Klatt) Phillips (Hb.H.G.MbPp)
9341. Chrysanthemum osmitoides Harv. (Hb.H.G.Mb)
9356. Schistostephium crataegifolium Fenzl (Sb.H.S.MbMk)
„ griseum Hutch. (Sb.MH.G.MkHl)
„ heptalobum (DC.) Oliv. & Hiern (Sb.MH.GS.MbPp)
„ rotundifolium Fenzl (Sb.H.GF.Mb)
9358. Artemisia afra Jacq. (Sb.H.G.Mb)
9370A. Brachymeris athanasioides Hutch. (Sb.H.G.MbMz)
„ bolusii Hutch. (Sb.H.G.Mb)
9401. Lopholaena coriifolia (Sond.) Phillips & Smith (Sb.H.G.Mb)
„ disticha (N.E.Br.) S. Moore (Sb.MH.G.MbSgPp)
„ platyphylla Benth. (Sb.M.G.Hl)
„ segmentata (Oliv.) S. Moore (Hb.H.G.Mb)
9405. Crassocephalum crepidioides (Benth.) S. Moore (Hb.H.G.MbPp)
„ picridifolium (DC.) S. Moore (Hb.H.S.MbMk)

9406. Cineraria deltoidea Sond. (C.H.G.Mb)
„ sp. (C.28822) (Sb.H.G.Mb)
9411. Senecio barbatus DC. (Hb.H.G.Mb)
„ barbertonicus Klatt (SucS.M.R.SgHl)
„ nr. barbertonicus Klatt (SucS.L.B.SgHl)
„ brachypodus DC. (C.LM.B.MbMzSgHl)
„ bupleuriformis Sch. Bip. (Hb.H.G.Mb)
„ bupleuroides DC. (Hb.MH.G.MbSgPp)
„ burchellii DC. (Hb.MH.G.MbSg)
„ caudatus DC. (Hb.H.S.Mb)
„ colensoensis O. Hoffm. (Hb.M.B.Sg)
„ concolor DC. (Hb.H.G.MbPp)
„ coronatus Harv. (Hb.MH.G.MbMkSgHl)
„ decurrens DC. (Hb.H.GS.Mb)
„ deltoideus Less. (C.MH.BS.SgHlPp)
„ erubescens Ait. sens. lat. (Hb.H.GS.MbMzHl)
„ fibrosus O. Hoffm. (Hb.MH.G.Mb)
„ fulgens (Hook.) Nicholson (Suc.LM.R.Sg)
„ galpinii Hook. (Suc.H.R.Mb)
„ glaberrimus DC. (Hb.MH.G.Mb)
„ glanduloso-pilosus Volkens & Musehl. (Hb.H.GR.MbHl)
„ hydrorrhizus C. A. Smith ined. (Hb.H.S.Mb)
„ inaequidens DC. (Hb.H.G.Mb)
„ inophyllus Phillips & Smith (Hb.H.GS.MbHl)
„ inornatus DC. (Hb.H.GS.MbMkPp)
„ isatideus DC. (Hb.H.G.Mb)
„ latifolius DC. (Hb.MH.G.MbMz)
„ longiflorus (DC.) Sch. Bip. (Suc.M.R.Mb)
„ microglossus DC. (Sb.H.G.Mb)
„ orbicularis Sond. (Hb.H.G.Mb)
„ oxyriaefolius DC. (Hb.H.GS.Mb)
„ pandurifolius Harv. (Hb.H.G.MbMkPp)
„ polyanthemoides Sch. Bip. (Hb.H.GS.MbPp)
„ pterophorus DC. (Hb.M.B.Sg)
„ purpureus L. (Hb.H.S.MbMk)
„ quinquelobus DC. (C.MH.BF.MbSgHl)
„ retrorsus DC. (Hb.H.S.Mb)
„ rhyncholaenus DC. (Sb.H.G.MbPp)
„ serratuloides DC. (Hb.MH.S.MbMz)
„ tamoides DC. (SucC.H.F.MbHlPp)
„ transvaalensis Bolus (Sb.LM.B.SgHl)
„ viminalis Bremekamp (SucC.LM.B.MzSgHl)
„ sp. nov. (C.25259) (Hb.MH.G.MbMzHl)
„ sp. nov. (C.26247) (Hb.H.G.Hl)
„ sp. nov. (C.26450) (Hb.M.G.MzSgHl)
„ sp. nov. (C.27246) (Hb.H.G.Mb)
„ sp. (C.24866) (Hb.H.S.Mb)
„ sp. (C.25029) (Hb.H.G.Mb)
„ sp. (C.25031) (Hb.H.G.MbMk)
„ sp. (C.25218) (Hb.H.R.MbPp)
„ sp. (C.25571) (Hb.H.S.Mb)

Senecio sp. (C.25672) (Hb.H.S.Mb)
„ sp. (C.28672) (Hb.H.G.Mk)
„ sp. (C.31124) (Hb.L.B.Mz)

9417. Euryops laxus (Harv.) Burtt Davy (Hb.H.G.MbPp)
„ setilobus N.E.Br. (Hb.H.G.Mb)
„ transvaalensis Klatt (Hb.H.G.Mb)

9420. Othonna scapigera Harv. (Hb.H.R.Pp)

9421. Gamolepis debilis Harv. (Hb.M.B.Mb)

9427. Osteospermum caulescens Harv. (Hb.H.G.Mb)
„ grandidentatum DC. (Hb.H.G.Pp)
„ jucundum (Phillips) T. Norlindh (Sb.H.G.MbHlPp)

9427B. Chrysanthemoides monilifera (L.) T. Norlindh (Sb.H.G.Mk)

9431. Ursinia montana DC. ssp. tenuiloba (DC.) Prassler (Hb.H.G.Mb)
„ saxatilis N.E.Br. (Hb.H.GR.Mb)

9432B. Haplocarpha scaposa Harv. (Hb.H.MbHlPp)

9434. Gazania krebsiana Less. ssp. serrulata (DC.) Sond. (Hb.LMH.GB.MbMzMkSgHl)

9435. Hirpicium linearifolium (Bolus) Roessler (Hb.H.S.Mb)

9438. Berkheya bipinnatifida (Harv.) Roessler ssp. echinopsoides (Baker) Roessler (Hb. LMH.BG.MbSg)
„ echinacea (Harv.) O. Hoffm. ex Burtt Davy (Hb.H.G.MbMk)
„ erysithales (DC.) Roessler (Hb.H.G.MbHl)
„ insignis (Harv.) Thell. (Hb.LMH.G.MbMzHl)
„ milleriana Bolus (Hb.H.G.Mb)
„ montana Wood & Evans (Hb.H.G.MbPp)
„ radula (Harv.) de Wild. (Hb.H.G.MbPp)
„ rhapontica (DC.) Hutch. & Burtt Davy (Hb.H.G.Mb)
„ robusta Bohnen ex Roessler (Hb.LM.B.MzSgHl)
„ setifera DC. (Hb.MH.G.MbMz)
„ speciosa (DC.) O. Hoffm. ssp. lanceolata Roessler (Hb.H.S.Mb)
„ zeyheri (Sond. & Harv.) Oliv. & Hiern ssp. rehmannii (Thell.) Roessler var. rehmannii (Hb.LMH.BG.MkMzHl)
„ „ „ „ ssp. rehmannii var. rogersiana (Thell.) Roessler (Hb.H.G.Mb)
„ „ „ „ ssp. zeyheri (Hb.H.G.Mb)

9501. Dicoma anomala (Sond.) (Hb.H.G.Mb)
„ cf. gerrardii Harv. (Hb.H.G.Mk)
„ macrocephala DC. (Hb.L.B.Mz)
„ zeyheri Sond. (Hb.H.G.Mb)

9528. Gerbera ambigua Sch. Bip. (Hb.LMH.BG.MbMkMzSgHl)
„ discolor Sond. (Hb.H.GS.MbHl)
„ galpinii Klatt (Hb.H.S.Mb)
„ jamesonii Bolus ex Hook.f. (Hb.LM.B.MbPp)
„ kraussii Sch. Bip. (Hb.H.G.Mb)
„ piloselloides Cass. (Hb.MH.G.MbMk)
„ plantaginea Harv. (Hb.M.G.Hl)
„ speciosa S. Moore (Hb.LMH.G.MbHl)
„ viridifolia (DC.) Sch. Bip. (Hb.H.G.Mb)

9561. Tolpis capensis (L) Schultz (Hb.H.G.Mb)

9592. Taraxacum officinale (Web.) Wigg. (W.H.G.Hl)

9593. Launea rarifolia (Oliv. & Hiern) Boulos (Hb.H.G.Mb)

9595. Sonchus asper (L.) Hill (Hb.MH.G.MbPp)
„ nanus Harv. & Sond. (Hb.H.G.Mb)
„ oleraceus L. (W.H.G.Mb)
„ stenophyllus R. E. Fries (Hb.H.G.Mb)
9596. Lactuca capensis Thbg (Hb.H.G.MbHl)
9605. Crepis hypochaeridea (DC.) Thell. ssp. genuina (Thell.) Babc. (Hb.H.G.MbHl)

Part III

NOTES ON THE FLORA OF SWAZILAND

The following Notes are intended to record points of special interest in the flora of the Territory, and to assist those concerned with it, either professionally or as students or amateurs, in discriminating between the various species. They are far from complete but will serve as a guide to identifications and as a means of reference to the more conspicuous and more abundant elements of the vegetation and the main biological and other features exhibited by them.

It is assumed that the reader will have a certain knowledge of Botany, so that he will, for instance, be able to place any particular plant in its correct family.

These Notes, however, do not constitute a true Flora, in which each of the families, genera and species would have its own description and in which keys would be provided for discriminating between them.

Even a full Flora does not, however, (and much less so do notes such as these) enable the identification of plants to be carried out with complete certainty. It is frequently necessary to visit a Herbarium or to send specimens of the plants in question to one. In the case of Swaziland, the Government's Botanical Survey is glad to assist in identifications through its Herbarium in Mbabane.

It may be mentioned that a great many of the plant species found in Swaziland also occur in the adjoining districts of the Transvaal, and the student is referred to the recently published "Wild Flowers of the Transvaal", 1962, for admirable illustrations of many of them and for text to supplement the brief notes which follow here.

PTERIDOPHYTA

Filicales

Hymenophyllaceae

The "filmy ferns" are confined to localities with constant moisture, the very delicate translucent fronds wilting at once when brought into dry air. For this reason they are scarce in the strongly seasonal climates of Southern Africa. In Swaziland only two species have so far been recorded. Both grow on moist rock surfaces, mixed with mosses and liverworts, in dense forest shade in the mountain mist-belt. They have thread-like creeping rhizomes and fronds only an inch or two in length which fork repeatedly into narrow strap-like lobes. *Trichomanes pyxidiferum* is the more vigorous and has been found near Mbabane: its sporangia are borne in minute cups at the tips of the leaf-lobes. Our other species, *Hymenophyllum tunbridgense* (which also occurs in Great Britain and

in many other parts of the world) has been found in the forests on Emlembe and is very inconspicuous: its sporangia are also produced at the tips of the leaf-lobes between a pair of flaps. The leaves of these interesting little plants are remarkable in being only one cell thick (apart from their fine tough veins) and they can absorb water over their surfaces, unlike the vast majority of ferns and flowering plants which have leaves several cells in thickness covered with water-proof cuticle, and can only take in water through their roots.

Cyatheaceae

Two species of tree-ferns occur in Swaziland. One of them, *Cyathea dregei*, is a plentiful and well-known upland plant, occurring mainly along streams or in the folds of the hills where streams run during the rainy season. Its stout, erect trunk, almost invariably unbranched, is thickly covered with the bases of old fronds, and sometimes reaches as much as 20 feet in height and over a foot in diameter. At its top is a magnificent crown of huge thrice-divided fronds reaching 5 or 6 feet in length, the main pinnae being up to 18 inches long. The fronds dry off and fall during the winter, being replaced in spring by the rapidly growing new fronds, coiled like croziers, and shaggy with dense brown scales which mostly disappear as the frond unfolds.

The other tree-fern, *Cyathea capensis*, is comparatively scarce in Swaziland, being confined to permanently moist situations in dense shade in upland forests. It has a stem only a few inches in thickness which seldom reaches as much as 10 feet in height before falling over under the weight of its large graceful fronds. These sometimes reach 12 feet in length, are of a delicate texture and cannot stand exposure to dry air. A curious feature is the presence at the base of each frond of two or more finely divided pinnae resembling the fronds of a filmy fern, and forming an interlacing tuft at the apex of the stem.

The sporangia in both these tree-ferns are borne in small round clusters on the underside of the pinnules, protected when young by a membrane which quickly disappears.

Cyathea dregei is confined to summer-rainfall districts in South Africa, whereas *Cyathea capensis* occurs also in the forests of the Cape coastal belt, even as far west as the Cape Peninsula.

Polypodiaceae

The great majority of ferns belong to this world-wide family which is represented in Swaziland by about 45 species of very diverse forms and habitats. Most of them have the familiar branching fronds called "fern-like", but some have simple undivided fronds which would never be so described. The minute individual sporangia are very uniform throughout the family, and the classification is largely based on their arrangement and position on the frond and whether they have a special protective membrane. They are most abundant in the high-

veld, and almost absent from the lowveld. The majority of species grow in relatively moist shady conditions, but there are many exceptions. Most species grow in the soil, having a short underground stem bearing a tuft of fronds: but there are some swamp plants and several which are epiphytic on tree-trunks or on mossy rock faces, and these usually have elongated creeping stems with scattered leaves. A few of the most distinctive species will be mentioned.

The well-known "bracken fern", *Pteridium aquilinum*, is locally abundant on open hillsides where it spreads by deep underground rhizomes and often forms a complete cover to the ground: the scattered fronds are usually only a foot or two high and harsh to the touch, but in the shade of bushes they may reach as much as 6 feet in height.

Most species of *Dryopteris* and *Polystichum* are plants of the forest floor: but *Dryopteris athamantica* grows in open situations, being specially partial to holes in the ground such as are made by ant-bears or jackals. *Thelypteris palustris* is a very widely spread swamp plant, abundant in suitable places in the highveld and having distinct sterile and fertile fronds. The species of Asplenium are also forest plants, some occasionally epiphytic.

Oleandra distenta is a remarkable and rare species: its elongated shaggy rhizomes grow in crevices in exposed granite boulders in the highveld and bear a series of individual fronds which are strap-shaped, an inch or more wide and a foot long, tapering to a narrow point, the slender stalk having a distinct joint about $\frac{1}{2}$ inch above its base.

The genus *Blechnum* comprises species with once-pinnate fronds, usually of two kinds, the pinnae of the fertile fronds being narrower than those of the sterile ones, and having their sporangia in a continuous band along their edges. *Blechnum tabulare* often grows socially among broken rocks in the mist-belt, and is a robust species which produces a short stout trunk above ground. *B. attenuatum* is a plant of moist forest shade, noteworthy for the beautiful colouring of its young fronds.

The genus *Pellaea* includes one abundant and very variable species, *Pellaea viridis*, which ranges from forest and bushy places to open grassveld. The other species are plants of more or less exposed situations away from the forest, especially frequent in the crevices or under the shelter of rocks. *P. calomelanos* is a specially striking species because of its black leaf-stalks and its curiously shaped grey leaflets. Our species of *Cheilanthes* and *Notholaena* have somewhat similar habitats.

Hypolepis sparsisora is a somewhat scarce fern of forest shade with very large finely divided leaves.

We have two species of *Adiantum*, the "maidenhair" ferns, but both are rather rare plants of shade and moisture.

Our Polypodiums are mostly epiphytes in mist-belt forests. *Loxogramme lanceolatum* has strap-shaped leaves, whereas in *Polypodium polypodioides* they

are once-pinnate. *Microgramma lycopodioides* is a rare robust plant trailing over rocks and fallen trunks in forest shade.

Elaphoglossum acrostichoides is a rare fern of rock surfaces in the mist-belt: its leaves are simple, the fertile ones having a longer leaf-stalk and a smaller leaf-blade which is coated on its under surface with a continuous layer of minute sporangia.

Gleicheniaceae

Gleichenia polypodioides is the "bead-fern" which grows rampantly in clearings in the forests of the Knysna region in the Cape, but is rare in Swaziland. The other two members of the family are sometimes called "umbrella-ferns" and are quite frequent in the mist-belt in bushy places or even by roadsides. The fronds of all these plants show continuous growth (unlike the limited growth of most fern-fronds), and may become many feet in length. Their sporangia are much larger than those of the Polypodiaceae, being clearly visible to the naked eye and borne in round groups of few together, without protective membranes.

Schizaeaceae

Mohria caffrorum, the "scented fern", is an abundant tufted plant up to about a foot high in the highveld. The soft fronds, which have a pleasant "new-mown-hay" scent when crushed, are of two kinds—the sterile which are produced early in the season and spread out, and the fertile which are taller and stand erect, produced later and bearing the isolated rather large sporangia somewhat protected by the recurved leaf-margin.

The other member of the family, *Schizaea pectinata*, is both scarce and inconspicuous in the upland grassveld, the very narrow almost grass-like leaves being produced in a tuft and only easily recognisable as fern-fronds by the crozier-like coiling of their tips when young. The sporangia are borne in a curious comb-like crest on the tips of some of the leaves.

Osmundaceae

Our one species, *Osmunda regalis*, the "royal fern", is a very handsome plant of marshy spots and streamsides, sometimes having fronds as much as three feet high but usually less, and noteworthy for the distinction of sterile and fertile pinnae, the latter being entirely without leaf-blade and bearing a dense mass of relatively large spherical sporangia containing green spores. Sometimes the whole frond is sterile, sometimes entirely fertile, and sometimes having both sterile and fertile pinnae.

Marsileaceae

Only one species has so far been found in Swaziland, *Marsilea ephippiocarpa*, a small "un-fern-like" plant of swamps in the bushveld. Its leaves have four

lobes and much resemble those of a clover (*Trifolium*) or sorrel (*Oxalis*). The spores are produced in small bean-like bodies at the base of the leaf-stalks.

Marattiaceae

Marattia fraxinea is one of our most magnificent ferns, found in moist ravines in forest shade, especially on rocks near streams and springs. It has a rounded stem covered with old leaf-bases and the enormous arching twice-pinnate fronds sometimes reach 10 feet in length and 3 feet in width. The spores are borne in curious oblong bodies containing several chambers, on the under surface of the pinnules near their edges.

Ophioglossaceae

Only one species, *Ophioglossum reticulatum*, the "adders' tongue fern", occurs in Swaziland and is apparently rare and certainly inconspicuous. It has a single leaf-blade 3 or 4 inches long and 1 or 2 inches wide rising on a narrow stalk from the underground stem: on the upper surface of the blade, where it narrows to the stalk, is borne the "tongue", its long slender stalk bearing a double row of sporangia near the tip.

Lycopodiales

Lycopodiaceae

The Lycopods or "club-mosses" are represented by five very distinct species in Swaziland, none of them at all common. They in no way resemble the ferns, and the resemblance to mosses is quite imaginary, except for the relatively small size of the numerous leaves which closely cover the stem. They are almost entirely plants of the upland mist-belt. *Lycopodium carolinianum* has a creeping stem rooting closely to the moist soil below hillside springs. *L. cernuum* is an erect gracefully branching plant a foot or two high, resembling a small fir-tree, also found chiefly near hillside springs and streamlets. *L. clavatum* is a loosely trailing hillside plant of slight shade, sometimes locally abundant. *L. gnidioides* grows on horizontal rock surfaces near forest margins, and is a tufted stiffly erect plant a foot or more high, the equally forking stems turning downwards at their tips. *L. verticillatum* is a forest epiphyte, whose slender forking stems hang loosely from the branches of trees, often to a length of about 3 feet. The sporangia are borne singly on the upper side of the leaves: in some species the fertile leaves differ somewhat in form and are clustered into slender "cones" suggesting the male cones of a pine.

Selaginellaceae

The Selaginellas bear a general resemblance to the Lycopodiums, but have two kinds of sporangia. The most abundant species is *Selaginella dregei* which

grows as a close coating over exposed granite rocks in the mist-belt, rooting in crevices and small pockets of peaty soil. It constantly accompanies the well-known "resurrection plant", *Myrothamnus flabellifolia*, and like it, it dries up and appears dead in dry weather, reviving on the return of moisture. *S. kraussiana*, a familiar plant in greenhouse cultivation, trails loosely over the ground on moist slopes near forest streams: the slender horizontal branching stems have four rows of leaves, two of larger and two of smaller size, and are propped above the soil by slender white root-like stilts produced at their forks. *S. mittenii* grows in somewhat the same kind of habitat and is of similar type, but smaller and more delicate, and clings more closely to the soil and rocks.

Psilotales

Psilotaceae

Psilotum nudum is one of our rarest plants and has so far only been found in one locality: on rocks near a stream in the forests surrounding Mbuluzi Poort. The slender green triangular stems are about a foot high, forking repeatedly and bearing minute leaves and small 3-lobed sporangia. It may be regarded as a "living fossil", its closest relationship being with certain long extinct plants of the very ancient carboniferous period. (Another living genus of this family occurs in the Indo-Malay region.) *Psilotum* is only known in Southern Africa from very few localities.

Equisetales

The only "horsetail" of Southern Africa, *Equisetum ramosissimum*, occurs sparingly in the sandy beds of perennial lowveld streams. It is a very variable plant, but has almost unmistakeable harsh jointed ridged leafless stems, some of the strongest of which may be tipped by a small oval spore-producing cone.

SPERMAPHYTA

Gymnospermae

Cycadaceae The Cycads

Encephalartos. Five species of this mainly Southern African genus occur in Swaziland, three of which are confined to the Lebombo range.

E. ubomboensis is a robust palm-like plant with a stout erect trunk covered with the dried bases of old leaves and sometimes reaching 10 feet in height. The leaves are very rigid, up to about 4 feet long and form a handsome crown at the top of the trunk. Occasionally a huge pineapple-like female cone is produced at the summit of the trunk; its orange scales eventually fall off and release the large bright red seeds. The male cones, which are much slenderer, are borne on distinct plants. This species grows on the rocky crests and escarpment of the Lebombo Hills, and is locally plentiful, making a striking feature in the landscape.

E. umbuluzensis is a much smaller plant never producing a trunk above ground: owing to the contraction of its roots the trunk is pulled down into the ground as fast as it grows, so that the crown of leaves is always borne at the surface, and old leaf bases can be found on the stem deep in the soil. It grows in forest shade in the lateral valleys of the Mbuluzi River where it passes through the mountains into Mozambique.

The third species, *E. villosus*, which extends to Swaziland from the Eastern Cape Province and Natal, is also a "stemless" shade plant, not very unlike *E. umbuluzensis* in general appearance, though the leaves are usually longer and softer in texture. The male cones are remarkably long and slender.

The fourth species, *E. paucidentatus*, is found sparingly in the mountains near Havelock Mine, as well as in the adjoining Barberton district of the Transvaal. It is a very handsome plant with leaves up to 10 feet in length and an enormous female cone.

The remaining species, *E. laevifolius*, has recently been discovered on steep rocky slopes in the mountains near Havelock Mine. It was previously only known near Kaapse Hoop in the Transvaal. The trunks are a few feet in height, and occur in groups, probably all being basal branches of the same plant. The leaves are very distinct from those of the other species, the numerous sharply pointed leaflets being only about $\frac{1}{4}$ inch wide, directed forwards and without lateral teeth. The cones are borne in groups of up to five.

Coniferae The Conifers

The only Conifers indigenous in Swaziland belong to the wide-spread mainly southern hemisphere genus *Podocarpus*, known in South Africa as "Yellowwoods", of which we have three species, viz. *P. latifolius*, the "true yellowwood", *P. falcatus*, the "bastard yellowwood", and *P. henkelii*, "Henkel's yellowwood". All three are good-sized trees; *P. falcatus* occurring in valleys of the Lebombo Mountains, the other two as scattered trees in the forests of the mist-belt in the Pigg's Peak and Mbabane districts. In addition *P. latifolius* occurs here and there as isolated trees in groups of granite boulders around Mbabane—in much the same way as at the other end of its range, on Table Mountain, where it can be either a tall tree in the forests or a dwarfed weather-beaten tree on exposed rocks in the zone of the south-easter cloud.

The yellowwoods can be easily recognised by their dense evergreen foliage of narrow leaves which have a distinct midrib but no lateral veins.

ANGIOSPERMAE

Typhaceae The Reed-Mace Family

The handsome *Typha capensis* ("Reed-Mace" or "Bulrush") occurs at the edge of standing water or gently flowing streams, rooting in the mud and

gradually invading the open water. The well-known sceptre-like inflorescences up to 18 inches long, whose innumerable minute female flowers in a dense brown mass below and male flowers above are produced on tall stems in early summer disintegrate into a cloud of fluffy fruits when mature.

Very similar species of *Typha* occur in similar positions all over the world—a feature of plant distribution which is common to a great many waterside and aquatic plants.

Potamogetonaceae

Potamogeton. Three species of these "waterweeds" with floating or submerged stems and leaves occur in the Mhlume Irrigation dam and canals and in some other waters. The small compact inconspicuous inflorescences are borne above the surface if the water is still enough. The plants may tend to interfere with the flow of water and also may have some significance in connexion with the Bilharzia problem.

Aponogetonaceae

Aponogeton. One species, *A. junceus*, with grass-like leaves and bifurcating inflorescences of small white flowers, occurs very locally in swampy places in the bushveld. It is closely related to the well-known "water hawthorn" or "water-uintjies" of the Cape.

Hydrocharitaceae

Lagarosiphon. One species, *L. muscoides*, with soft submerged branches crowded with narrow leaves, occurs in pools and dams in the bushveld.

Gramineae The Grasses

One can hardly over-estimate the importance of the Grass family in the vegetation of Swaziland, nor its economic significance to the human population. Grasses of one kind or another occur in every possible situation, high or low, wet or dry, from open grassland to dense forest and in all types of soil. They closely cover the open hillsides and plains, their underground parts becoming dormant in the winter, resisting drought and fires, and growing again promptly at the onset of rains. The reaction of these "veld" grasses to grazing and overgrazing and to burning at different seasons of the year is of great importance to the stock farmer who is responsible for these artificial factors, and the proportions of the species composing the veld can vary greatly, according to the kind of management it receives. It is easy to exterminate useful grasses by mismanagement. (Though it must be remembered that before the coming of sheep, goats and cattle there were great numbers of antelopes and other grass-eating animals, and that fires have been of constant occurrence in Africa from long

before they were caused intentionally: so that African vegetation is largely resistant to fires and grazing, provided these factors are not excessive as they so often are under human management.)

The number of different species of grasses in the Swaziland flora is considerable, as might be expected from its varied soils, climates and topography. So far 165 species (+ varieties) have been recorded, and there are certainly more to be found. Though it is impossible to go into details as to grazing value, etc., a few notes may be given on genera and species of special interest ["The Grasses and Pastures of South Africa", ed. D. Meredith, 1955, should be consulted for further details].

Imperata cylindrica is conspicuous in some swampy places on account of its thick silvery spikes.

Hyparrhenia. This genus includes several species of handsome grasses reaching five or six feet or more in height, plentiful over wide areas especially in the middleveld, and often in ground that has been ploughed or otherwise disturbed. They are the principal grasses used for thatching houses and huts.

Monocymbium ceresiforme is a very distinctive grass in the highveld, flowering late in summer and having russet boat-shaped spathes standing out at an angle from the stem.

Themeda triandra is the well-known "red grass", which grows socially on open hillsides and plains in the highveld, giving a characteristic red brown tint to the landscape in late summer. It is palatable to stock and in over-grazed areas it tends to be replaced by wiry and innutritious species of Eragrostis, Sporobolus, etc.

Axonopus compressus is the so called "Swaziland Carpet Grass", which is apparently American in origin, but is spreading rapidly around Mbabane and some other localities. It forms a very dense resistant turf and has some reputation as a rough lawn-grass, though its colour in winter is unattractive. It can grow luxuriantly in wattle plantations and tends to colonise roadsides, tracks and areas trodden by cattle.

Panicum. At least 10 species of this big genus occur in Swaziland, some in the bushveld, others in mountain sour-veld. The most important is *P. maximum* which occurs throughout the bushveld especially in association with Acacias, and is of fundamental value for stock-grazing.

Digitaria. Another large genus including the "Finger Grasses", some of which have been used in anti-soil-erosion work. The introduced annual *D. sanguinalis* is a troublesome summer weed in gardens. The Swaziland species *D. swazilandensis* has been widely used as a lawn-grass: it closely resembles "Richmond Grass", *D. diversinervis*, which is also a favourite lawn-grass.

Rhynchelytrum repens, the "Red-top" grass, is one of the most conspicuous and attractive species. It grows socially, especially in disturbed ground, and

the inflorescences with their dense silky pink or rose-coloured hairs are particularly showy when the sunlight shines through them.

Oplismenus hirtellus is one of the very few grasses growing in the dense shade of montane forests.

Setaria chevalieri is a handsome grass with unusually broad pleated leaves occurring in moist places and upland forest margins, and sometimes grown for garden decoration. Other species are tussock-forming grasses with tall slender dense inflorescences often with yellow, brown and purplish bristles.

Pennisetum. The well-known "Kikuyu Grass", a native of tropical East Africa, *P. clandestinum*, is widely used for pastures and lawns. It has very inconspicuous flowers, very unlike those of the tall bristly inflorescences of other species of Pennisetum and Setaria: in fact many people believe that Kikuyu grass never flowers. Some of the indigenous species have coloured bristly inflorescences much resembling those of some Setarias. *P. macrourum* is a swamp species reaching 10 feet in height with irritating leaf bristles. The well-known "Napier Fodder" is an introduced species, *P. purpureum.*

Prosphytochloa prehensilis is a slender branching species, found in moist forest conditions. The leaf-margins bear innumerable minute hooked bristles which cause the plant to adhere firmly to one's clothes.

Aristida. A few species of this large genus occur in Swaziland. They usually indicate over-grazing and are of little food value, and their "grass-seeds" are troublesome in clothing, sheep's wool, etc.

Sporobolus. Several species are abundant in the highveld, especially in areas which have been repeatedly burnt and over-grazed.

Loudetia simplex is the "Russet Grass", which gives a characteristic colour to many highveld areas in autumn.

Chloris gayana is the well-known and widely distributed "Rhodes Grass", introduced and cultivated by Cecil Rhodes and now widely cultivated for pasture and hay.

Phragmites mauritianus is the common tall "Reed" of river-banks, ranging throughout their whole course from highveld to near sea-level.

Eragrostis. A very large genus of which we have several species, especially in the highveld, occasionally in swamps. Like *Sporobolus* they are indicative of over-burning, and their wiry stems and leaves are only grazed when young.

Cyperaceae The Sedges

The Cyperaceae are well represented in Swaziland, and up to the present about 75 species, comprised in 19 genera, have been recorded. The great majority of them grow socially in swampy ground, at all altitudes, for the most part in muddy and peaty soils with an acid reaction. Very few are of any economic importance, and they are very seldom grazed by animals. The inflorescences are mostly of various shades of brown, and the plants are in general less graceful

than the grasses. Some species known as "water grass" or "Indian quick" are troublesome garden weeds. Species of *Ascolepis*, *Mariscus* and *Kyllinga* have white inflorescences.

Cyperus. Two species, *C. immensus* and *C. latifolius*, are robust swamp plants, the former reaching 6 feet high. A variety of *C. compactus* has bright yellow inflorescences and is attractive as an "everlasting" decoration. *C. rupestris* is abundant in the crevices of highveld granite rocks. One or two species are used for matmaking. The well-known handsome *C. papyrus* of Central and North African "sudd" and rivers is often used as a waterside garden plant.

Carex spicato-paniculata is a graceful plant, common at the foot of boulders in the highveld. *Bulbostylis burchellii* is found on dry stony hillsides, and is abundant in the crevices of highveld granite rocks. Another Cyperaceous plant abundant on granite rock surfaces is *Coleochloa setifera*, from which the well-known Swazi floor-mats are made: this plant has the peculiarity of turning bright orange-coloured during rain after a dry spell.

Palmae The Palms

Palms are on the whole scarce in Southern Africa, and in Swaziland only one species is known. This is the so-called "Cape Date Palm", *Phoenix reclinata*, found here and there in river-beds in the middleveld and lowveld. It usually grows as a branching bushy mass of stems, but occasionally single stems reach several feet in height. The bright orange "dates" are scarcely edible.

Araceae The Arum Family

This family is represented in Swaziland by three genera, all herbaceous perennial plants with underground tubers or hizomes.

Zantedeschia. These are the familiar "Arum Lilies", peculiar to Southern Africa, of which four species occur in Swaziland. The best known "Arum", the white *Z. aethiopica*, so abundant in the South West Cape Province, is scarce in Swaziland. Two other species, *Z. oculata* and *Z. melanoleuca* var. *tropicalis*, both with a large yellowish-cream spathe with a dark purplish blotch in its base, occur here and there in the highveld—the former in swampy places, the latter among rocks in partial shade: the former usually has leaves of a uniform green, the latter has leaves with transparent spots consisting of epidermis only. The most abundant species is the small-flowered *Z. rehmannii*, characterised by its narrow leaves without the downward basal projections of the other species. The vast majority of plants have white spathes, but here and there plants with light pink spathes occur, and in one district some of the plants have spathes of a deep maroon or burgundy colour. This last colour variety is popularly supposed to "turn white in gardens"—a theory probably based on inaccurate observation.

Stylochiton is an Arum-like genus of which two species occur in Swaziland. The larger, *S. natalense*, found in shade in the bushveld, has broad dark green

sagittate leaves and rather inconspicuous inflorescences, shorter than the leaves and dull purplish inside the spathe. The other species is much smaller and occurs in mountain grassland. It seldom flowers and each plant normally produces only one leaf each year.

Gonatopus. One species, *G. boivinii*, occurs at low altitudes in dense forest in one at least of the river poorts through the Lebombo Mountains. The leaf is much divided and very unlike the typical "Arum".

Restionaceae The Cape Reed Family

Our single Restio, a variety of *R. sieberi*, occurs as an inconspicuous rarity on high mountain crests, and is chiefly noteworthy as an outlier of the very numerous species of this mainly South African Family found abundantly in the Cape winter-rainfall area.

Xyridaceae

The only genus is *Xyris*, of which there are about 4 species in Swaziland, all slender perennial swamp plants from a few inches to about 2 feet high, with bright yellow fragile flowers borne in a head at the top of the peduncle.

Eriocaulonaceae The Pipewort Family

Five species of *Eriocaulon* occur as upland swamp plants in Swaziland; they are tufted sedge-like plants with basal rosettes of leaves and a knob-like white inflorescence at the top of the peduncle, which is up to about a foot high.

Commelinaceae The Tradescantia Family.

Five genera of this widely-spread family occur in Swaziland.

Commelina. Abundant trailing or half erect plants, with bright yellow or blue flowers, easily known by their two conspicuous petals: we have about 6 species found in a great variety of situations.

Cyanotis. Three species occur. *C. lapidosus* inhabits splits in the granite rocks in the highveld and has small clusters of magenta flowers. The other abundant species, *C. nodiflora*, is a montane grass-veld plant with attractive small tight clusters of blue and magenta flowers with bright yellow anthers, at the joints of the stem.

Juncaceae The Rush Family

We have three species which grow somewhat sparsely in highveld swamps among the sedges (with which they are often confused) and other semi-aquatics.

Liliaceae The Lily Family

This important Family includes a very large number of genera and species of most diverse form and habitat. It is well represented in Swaziland, about 140

species, comprised in 33 genera, having been recorded. Some of these are decidedly handsome plants, others are modest and inconspicuous; only one of them, *Gloriosa superba*, bears any superficial resemblance to a true Lilium: the most "lily-like" plants belong to the family Amaryllidaceae. They are all perennial, most of them having underground bulbs, tubers and rhizomes, and losing their aerial parts in the winter: some are without subterranean resting parts, but have leaves, usually succulent, which remain green throughout the year.

Gloriosa. The only species, *G. superba*, the national flower of Southern Rhodesia, has stems which climb to a height of several feet, arising from tubers deep in the ground, bearing broad leaves which end in a tendril-like tip. The large flowers face downwards, and the petals, stamens and style spread horizontally: in the Swaziland variety the petals are clear yellow with slightly wavy edges. Only known in a very few localities and liable to be exterminated.

Littonia. The vegetative parts are almost identical with those of Gloriosa, and the plant supports itself by leaf-tip tendrils in the same way. The flowers also hang downwards (hence the specific name *L. modesta*), and are shaped like an inverted tulip and clear yellow in colour. It occurs mostly in bushy rocky places at altitudes round about 4,000 feet.

Androcymbium. Our only species, *A. striatum*, is a low growing plant, somewhat infrequent in highveld localities, often wedged among rocks. The flowers are small and greenish and are concealed by the large conspicuous spathes which are white veined with green.

Bulbine. Low-growing plants with numerous slender somewhat fleshy leaves and long racemes of small yellow flowers. One species, *B. stenophylla*, grows socially in thousands in some upland swamps, making a bright show of colour in spring.

Anthericum. This is a large genus of somewhat inconspicuous plants, mostly with slender tufted leaves and elongated inflorescences of white flowers, often opening in the afternoon. With the closely related genus *Trachyandra*, there are nearly 20 species recorded in Swaziland, nearly all in upland grassveld and swamps, the most attractive being perhaps *T. asperata* of the Mbabane district.

Chlorophytum. These are robust plants, somewhat suggesting large Antherícums, and with very similar white flowers. *C. krookianum* has broad flat leaves and a branching inflorescence which may reach eight feet high. *C. bowkeri* is a shade plant, somewhat smaller, with an unbranched inflorescence, extending from lowveld to highveld.

Bowiea. The single species, *B. volubilis*, apparently rare in Swaziland, is a remarkable plant with a large underground tuber from which rise the tall green branching leafless climbing flower-bearing stems. It contains highly poisonous alkaloids which have caused death in human beings and animals.

Eriospermum. The plants have potato-like tubers from which arise the leaves and inflorescences. Some species have yellow star-like flowers, others white. The seeds are covered with a woolly growth (hence the generic name). *E. cooperi* reaches two feet in height, but other species are much smaller.

Kniphofia. The "red hot pokers" are familiar plants, having flowers closely resembling those of Aloes, but with rhizomes and tufts of long non-succulent leaves. Some species are locally plentiful in Swaziland, especially in swampy ground or in the mist-belt—e.g. the tall *K. linearifolia* and the smaller *K. porphyrantha*, both with red buds opening as yellow flowers. *K. fusca* is a remarkable and very rare swamp species with slender spikes of dull red flowers. *K. multiflora* is a handsome swamp plant with slender brightly coloured inflorescences up to 6 feet in height. *K. splendida* is a very robust plant found on rocky hillsides, with a very thick spike of innumerable yellowish-green flowers on a peduncle up to 6 feet high.

Aloe. There are at least 20—and probably several more—species of Aloe in Swaziland, ranging from the tiny *A. albida*, a few inches high, to the branching tree-like *A. bainesii:* both of these are rare and local, but some species, of intermediate stature, are very abundant and conspicuous. The handsome *A. marlothii* grows by the thousand on rocky hills in the middleveld and in adjoining areas of bushveld, and is characterised by its stout unbranched stem, the leaves bearing prickles on edges and surfaces, and the inflorescences with their horizontally spreading branches and orange flowers produced in July. *A. suprafoliata* occurs on bare granite outcrops in the highveld and is one of the most beautiful species, flowering in June. *A. parvibracteata*, a low growing social species, occurs in great abundance along the western foot of the Lebombo Hills and in many other bushveld localities: its vermilion flowers make a magnificent display in June and July. *A. arborescens* is a branching species occurring on rocky outcrops and in semi-forest in the highveld, sometimes reaching 20 feet high, and loaded with showy inflorescences. *A. cooperi* is a species with soft leaves which occurs in moist places in the highveld and flowers at midsummer. *A. kniphofioides* is also a highveld species, remarkable for having its leaf bases swollen below ground and forming a sort of bulb. *A. chortolirioides* has densely tufted grass-like leaves and would scarcely be recognised as an Aloe when not in flower: it occurs on rocky outcrops in the highveld and almost never flowers unless it has been burnt in a veld fire shortly before. *A. albida* and *A. minima* are also "grassy" Aloes which can easily be overlooked. *A. saponaria*, with rosettes of handsome spotted leaves, is sometimes used as a vegetable by the Swazis! Most species, however, contain a very bitter juice and are definitely inedible (though the nectar in the flowers is sweet and attracts sun-birds).

Gasteria. This genus of succulents, mainly occurring in the Cape Province, is represented by a single rare species in Swaziland, occurring in the Lebombo forests.

Haworthia. Another mainly Cape Province genus of succulents, of which one species, *H. limifolia*—with several minor varieties—occurs in Swaziland: a very local and inconspicuous plant.

Agapanthus. The "African Lilies" so well-known as garden plants are represented in Swaziland by several species and varieties. One of these, known in European botanic gardens and recently "rediscovered" in Swaziland, is *A. caulescens*, a tall handsome blue-flowered plant, whose leafy stems tend to rise a short distance above ground. This occurs in forest margins and in split rocks in the highveld and makes a fine show in January and February. Another species, *A. inapertus*, has a tall peduncle with a relatively small head of narrow hanging flowers, which vary from light blue to violet: this occurs on slopes or rocky hills in highveld areas and also flowers in January and February. Other "varieties", some of them almost distinct enough to be regarded as species, occur locally.

Tulbaghia. Two or three species occur, some having leaves and bulbs with a strong smell of garlic. The "corona" in the flowers—like a Narcissus on a smaller scale—is characteristic of this genus.

Albuca. These rather distinctive plants, of which Swaziland has about six species, have flowers which are half closed, pendulous in some species, erect in others, the thick petals white or yellow with a green stripe along the midrib. One species, *A. bainesii*, is a plant of deep shade at low altitudes; the others are highveld plants, often found in rock crevices; one species (? *A. fastigiata*) is an upland swamp plant nearly six feet in height, and others are also robust plants with lush juicy leaves. The naming of these plants presents much difficulty.

Urginea, *Drimia* and *Dipcadi.* A considerable number of species of these somewhat undistinguished bulbous plants occur in Swaziland. Few of them have any special beauty of colouring, etc. In Drimia the petals are usually sharply reflexed and the bulbs have thick fleshy bulb scales. In Dipcadi the flowers are usually greenish, and in some species the petals taper to elongated slender points. *Urginea epigaea* and *Drimia alta* are robust plants, but most of the other species are slender and weak stemmed: *U. lydenburgensis* of the bushveld has extraordinary bulbs with loose spreading fleshy scales, but is otherwise a very slender inconspicuous plant.

Scilla. About a dozen species occur in Swaziland; some are difficult to distinguish from one another and their nomenclature is far from definite. Most species are low growing social plants with relatively large bulbs, soft leaves (often with large blotches and purple undersides) and racemes of small purple or magenta flowers. *S. natalensis* is however a handsome plant with bulbs several inches in diameter, and peduncles up to four feet high bearing sky-blue or blue-mauve flowers. *S. megaphylla* is a large-leaved species with dense racemes of greenish white flowers. *Schizocarpus nervosus* (formerly regarded as a *Scilla*) is striking on account of its stiff leaves, very long flower-stalks and white flowers.

Eucomis. This genus is unmistakeable on account of the tuft of green leaves

at the tip of the stout dense inflorescence, which has earned it the popular name of "pineapple plant". The individual flowers are green and persist into the fruiting stage. *E. undulata* has an outspread rosette of soft light green leaves with wavy margins, and an inflorescence of about a foot high or less. It occurs in mountain grassland. *E. pole-evansii* is a striking species occurring in upland swamps, having broad erect leaves and an inflorescence up to at least four feet in height.

Ornithogalum. This genus, to which the well-known Cape "chincherinchees" belong, is represented in Swaziland by half a dozen species. *O. caudatum* is noteworthy for its large pale green fleshy bulbs, growing exposed on rock surfaces in forest shade, with long racemes of greenish white flowers. *O. zeyheri* with white flowers grows at the edge of rivers and is frequently quite submerged. *O. saundersiae* is a robust plant with a tall unbranched inflorescence bearing cream-coloured flowers with a dark centre. It is very local in Swaziland, but may be very abundant where it does occur. It has been proved to be highly poisonous to cattle.

Dracaena hookeriana is the only Swaziland species of the genus which includes the "dragon tree" of the Canaries. It grows among rocks in the shade of montane forests, its stout stem reaching 10 feet or more in height and bearing a crown of large leaves, 2 feet long, and branching inflorescences of greenish flowers, produced in December.

Sanseviera. Two species, perhaps more, are found in the Swaziland bushveld. They spread by underground rhizomes and have erect and remarkably hard leaves of a foot or more long, produced singly or in tufts above the surface. In *S. thyrsiflora* the leaves are broad and "marbled" with green and white. In *S. deserti* they are cylindrical narrowing to a sharp point: this species is rather characteristic of old decomposed ant-hills, whereas *S. thyrsiflora* occurs in level ground, often associated with *Aloe parvibracteata*. The inflorescences are about the same height as the leaves, the individual flowers being rather delicate and cream-coloured, followed by spherical fleshy berries.

Asparagus. There are about a dozen species of *Asparagus* in Swaziland, some of which are to be found at all altitudes and from full sunlight to dense shade. Familiar plants in house cultivation overseas are the feathery *A. plumosus*, *A. sprengeri*, frequently loaded with bright scarlet berries, and the so-called Smilax, *A. asparagoides*. Others include the magnificent *A. aethiopicus*, a strong climber with formidable hooked thorns and great masses of white scented flowers borne on the tops of other shrubs.

Behnia reticulata is a tall slender branching climber, occurring somewhat rarely in upland forests: it has well developed leaves and loose panicles of greenish flowers.

Smilax kraussianus is a very common straggling climber in bushy places in the highveld. Close clusters of greenish flowers and later black fruits are borne

in the axils of the broad leaves which are 3 or 4 inches in length. The tendrils by which the plant climbs are borne at the base of the leaves, and the stem is rough with small hooked prickles capable of tearing the skin.

Amaryllidaceae The Amaryllis Family

This family of bulbous plants comprises many of the most distinctive and beautiful plants in the Southern African flora, and Swaziland has a good share of these.

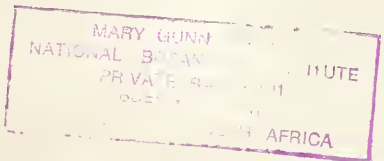
Haemanthus. Our three species are very distinct. *H. hirsutus* ranges from the highveld to the bushveld in shady situations below or on the surface of rocks: it has two outspread leaves covered with white hairs; the flowers are borne in a dense head on a peduncle a few inches to a foot high and are white or pale pink in colour. *H. magnificus* is a very striking plant, with an erect leafy stem up to 3 feet in height, the individual leaves reaching over a foot in length and 8 inches in width: the stout peduncle is up to 18 inches long and bears a large number of flame coloured flowers with yellow anthers, enclosed in a cup of brightly coloured bracts: it occurs among rocks in partial shade in the highveld. *H. multiflorus* is a bushveld plant; the peduncle is slender, the bracts are inconspicuous and the scarlet flowers are spread out in a round head four or five inches in diameter. All three species flower mainly from October to December.

Clivia. Our three species are handsome plants growing in forest shade among rocks. *C. caulescens* produces a leafy stem up to 18 inches long, and has a cluster of about 20 tubular flowers, orange with green tips, at the apex of the peduncle. *C. nobilis* has somewhat similar flowers, but does not run up to a stem. *C. miniata* has a few larger wider-open orange flowers. All have dark green strap-shaped leaves. The last named species and hybrids are well-known in cultivation.

Nerine. *N. angustifolia* is an attractive highveld swamp plant, producing about half a dozen flowers with pink waved-edged petals at the top of a slender peduncle up to 18 inches high. The plant flowers in February and March and the slender leaves often do not appear till later.

Brunsvigia. We have two magnificent species of the "candelabrum lily" genus. *B. radulosa* occurs scattered in open montane grassland: its six or eight large tough leaves spread out firmly on the ground, forming a flat rosette up to 3 feet in diameter. The large deep pink lily-like flowers are borne on long stalks in a spherical head; the stalks elongate as the fruits develop, so that the head also may become 3 feet in diameter: it then detaches itself at the base of the peduncle and rolls away in the wind, dropping its large seeds as it goes. The other species, *B. natalensis*, grows socially in some upland swamps, and is similar but a little smaller in all parts.

Boophane. The well-known "poison-bulb", *B. disticha*, occurs right through Southern Africa and is found in many open highveld localities in Swaziland. The bulb is very large, often half above ground and covered with brown papery



sheaths: the flowers are pink and are very numerous, arising from the top of the peduncle in a dome-shaped head, and are produced in September and October. The inflorescence then enlarges and becomes detached, scattering the seeds in the same way as in *Brunsvigia*. The leaves appear later and are spread out like a fan in a vertical plane. The bulb contains highly poisonous alkaloids.

Anoiganthus. *A. breviflorus* is a bright yellow flowered plant a few inches high, growing in upland and middleveld swamps, and sometimes flowering in profusion in winter and early spring after burning: as little as six days may elapse between the fire and the production of flowers.

Apodolirion. The bright pink starlike flowers are produced in August and September, often before the spring rains, the leaves following later. As with many other Amaryllids, burning of the grass (especially in areas which have not previously been burnt for several years) is often followed by copious flowering.

Crinum. These large-flowered plants grow here and there, usually in moist places. The "lily-like" flowers are white or tinged with pink or mauve. The seeds are unusually large, resembling small potatoes; they are without a hard coat and germinate almost immediately after production.

Ammocharis. *A. coranica* is widely spread across Southern Africa, and occurs in bushveld localities in Swaziland. The strap-shaped leaves are spread starfish-like on the ground, and the flowers, of various shades of pink, somewhat resembling those of Boophane, are produced about November.

Cyrtanthus. Five species occur in Swaziland, all of them having attractive flowers. One species, *C. galpinii*, is typically a bushveld plant, mainly found in river valleys and on stream banks: it has a solitary wide open "lily-like" flower, about 3 inches long, of varying shades of pink, salmon or orange, produced during the late autumn. The other three species are plants of upland areas and have up to half a dozen slender tubular flowers in an umbel. In *C. stenanthus* var. *major*, from the Ngwenya Mountains, the tube is very slender, about 2 inches in length and clear yellow; the flowers are produced in November. *C. bicolor* and *C. tuckii* var. *transvaalensis* have shorter and broader nodding flowers of a flame colour: in *C. bicolor* the flowers are about $1\frac{1}{2}$ inches long, in the other species somewhat longer: the flowers are produced in either late autumn or early spring, usually before the leaves which develop during the summer: the time and abundance of flowering seem to depend, in some way not fully understood, on the occurrence of grass fires, as in many other Amaryllidaceae. The flowers are sometimes gathered for food by Africans!

Hypoxis. This large genus is represented by about 15 species in Swaziland. Nearly all of them are found in the highveld and middleveld, and they all have yellow star-like flowers produced especially in October and November. The plants range in height from an inch or two in *H. membranacea* to two feet in *H. rigidula*. The leaves are usually narrow and strongly veined and often hairy. The flowers of *H. membranacea* and *H. filiformis* are about half an inch across,

while those of some of the tall species are showy and up to 2 inches in diameter: in most species the underside of the petals is hairy. Some of the species are locally abundant in grassveld, and their hard rootstocks resist burning, so that the flowers often make a good show on burnt areas in the early spring.

Empodium plicatum, superficially rather like a *Hypoxis*, appears to be rare in Swaziland.

Rhodohypoxis baurii is found occasionally in moist peat on the surface of granite rocks in the mist-belt. It grows socially, having bulbs the size of a pea and wide-open bright pink flowers about an inch in diameter, produced in October and November.

Velloziaceae

Vellozia. Three species occur in Swaziland. Two of them are conspicuous and unmistakeable plants, with stout little-branched stems covered with a thick tough mass of fibrous old leaf-bases, usually blackened by fire, slender harsh and very toughly fibrous grass-like leaves, and rather handsome mauve flowers with long pointed petals. The flowers are usually only produced after a grass-fire has scorched the plants. *V. clavata* is the more robust of these two species, having thick stems which occasionally reach six feet in height, but are usually much shorter: it is abundant and characteristic on bare granite outcrops in the mist-belt. The other species, *V. equisetoides*, occurs in some bushveld localities (e.g. near Komati Bridge): it has rather more slender stems, longer leaves and paler smaller flowers. A third species, *V. humilis*, is a low rather tufted grass-like plant, which occurs on bare rocks in the mist-belt and produces its small white or mauve flowers rather infrequently.

Dioscoreaceae The Yam Family

This family which includes the tropical root-vegetables known as Yams, is represented by about half a dozen species in Swaziland, all of them vigorous or rampant climbers. They all belong to the genus *Dioscorea*, though one of them, *D. sylvatica*, has often been put in the genus *Testudinaria* on account of its cork-covered flattened tuber borne on the surface of the ground. The other species have underground tubers. The climbing shoots are produced in summer and die off in the autumn. In *D. dregeana* var. *hutchinsonii*, a plant of bushy hillsides, the shoots may grow thirty feet in a single season and bear large trifoliate velvety leaves and much-branched thread-like inflorescences of small flowers followed by papery winged fruits. *D. sylvatica* (like its relation *D. elephantipes*, the "Elephants Foot", in the Cape Province) has been exploited as a source for one of the components of synthetic cortisone: it is a plant of rocky places among bushes, ranging from 1,500 to 4,500 feet, but never plentiful in Swaziland. The tubers reach 18 inches in diameter, and the leaves are glabrous and heart-shaped.

Iridaceae The Iris Family

Southern Africa is richer in members of the great Iris family than any other part of the world, the Cape Province being apparently its home and centre of distribution and the area in which the majority of species occur. Swaziland has a number of outliers of the family, most of them plants of higher altitudes (a rule applying to "Cape" plants all through Africa), though a few have adapted themselves to bushveld conditions.

Moraea is the most Iris-like South African genus, the flowers only differing from the true Iris type in having the petals separate to their base. Swaziland has three showy yellow-flowered species: *M. galpinii* flowers very early in the spring, often in fact before the first good rains: its flowering stems are only about 6 inches high, but the flower is 4 inches in diameter, and the leaves (produced later) grow to two feet long. *M. spathulata* and a plant which may be *M. moggii* are much taller; the latter is tufted, has erect leaves and petals nearly 3 inches long, while the former is slightly smaller, but has twisted trailing leaves which may reach 7 feet in length. Our four other species are slender plants with much smaller flowers.

Dietes is very like *Moraea*, but has rhizomes instead of corms, which results in the plants growing socially in spreading clumps. Our species, in several forms, occurs in bushy places ranging from highveld to lowveld: it has white flowers with yellow markings and mauve-tinted style-branches.

Aristea. This mainly "Cape" genus is represented by three species, distinguished by their bright blue flowers—*A. cognata* rare in the middleveld, *A. ecklonii* in dense shade in montane forests, and *A. woodii* frequently scattered in upland grassveld.

Schizostylis coccinea, known as the "Kafir Lily", is one of our most beautiful plants. It grows mixed with other vegetation along the edge of mountain streams, its scarlet flowers, 3 inches across, overhanging the water in December and January. It has been long known in cultivation, and, in spite of its natural aquatic habit, it succeeds well in ordinary garden conditions.

Hesperantha, another "Cape" genus, has two species in Swaziland, both in upland areas, *H. baurii* with pink flowers, and *H. lactea*, in swamps, with cream-coloured flowers.

Dierama, whose species are known as "Grassy Bells" or "Wand Flowers", has about six species in Swaziland, all charming and graceful plants, most of them with flowers suspended on long hair-like stalks, frequently hanging and swaying in the breeze. They are all upland plants of grassveld, swamps or rock outcrops, with tough grasslike leaves and bell-shaped pink or magenta flowers. *D. robustum* is perhaps the most striking.

Crocosmia aurea is a handsome plant of unusual habitat, occurring in moist shady upland forest conditions, where it produces its showy bright orange

flowers in February. It is one of the parents of the well-known hybrid "Montbretias" of gardens.

Gladiolus is one of the Iridaceous genera which has migrated away from the Cape, even as far as Europe and the Orient. Its hybrids are legion and are of great importance in horticulture and the florists' trade. In Swaziland it has more than a dozen species, nearly all in upland localities. Of these *G. crassifolius* is the most abundant, and is very variable in flower colours, etc., being most usually bright pink with darker blotches on the lower lateral petals: the flowers are borne close together, usually all facing one way, on a leaning inflorescence. *G. psittacinus* var. *cooperi* is a robust species with speckled flowers, found in the bushveld, and the scarce *G. aurantiacus* is a somewhat similar highveld species. *G. praelongitubus*, from rocky outcrops in the mountains, has usually only one or two white flowers which are remarkable for the slender corolla tube, which may be four inches in length, below the expanded part of the flower. The other species have medium-sized flowers, charming in shape, but often sombre in colouring: some of them have not yet been described and named.

Radinosiphon leptostachys is a slender plant with small long-tubed pinkish flowers, occasional in mountain rock crevices.

Curtonus paniculatus is found abundantly in marshy ground in the highveld: its fluted leaves and branching inflorescences of reddish to orange flowers are characteristic.

Lapeirousia. The two local species of this mainly Cape genus are soft slender plants of bushy places, especially at middle altitudes. They have long-tubed flowers of various shades of pink, salmon, orange or scarlet, produced over a long period in the summer months.

Watsonia. This important genus, comprising many showy species, especially in the Cape Province, is represented in Swaziland by three species, all plants of the montane grassland. *W. densiflora* (or rather a species belonging to this complex and wide-spread group) has harsh prominently nerved leaves and flowers densely set in a long unbranched inflorescence, about 3 feet high: the colour of the flowers varies from a brilliant pink-magenta to a deep burgundy shade. *W. watsonioides*, formerly known as *W. flavida*, is a much more slender plant, abundant all over the western and north western mountains and flowering mainly in January and February. The leaves are narrow and the flowers vary through shades of cream from almost white to almost yellow: and there is a colour variety, abundant on the Mankaiana plateau, in which the flowers are a deep burgundy shade, this being found to the exclusion of the cream-coloured varieties. The third species, *W. latifolia*, is very distinct from the others. It occurs on rocky outcrops in some of the steep-sided highveld valleys in the Mbabane district. The leaves are light green and may be over 3 inches wide: the inflorescence reaches 5 feet high and the flowers stand out well in two rows, are well spaced apart and are of a rich dark red colour: they are produced in

February and March. It is a species well worthy of cultivation, and much "easier" than *W. densiflora*.

Musaceae The Banana Family

The local "wild banana" belongs to the species *Strelitzia caudata*. It is a plant which occasionally forms almost pure groves, but more usually grows as isolated plants on rocky outcrops or in the forest of ravines, where it may reach a height of 25 or 30 feet. It is confined to mist-belt areas. It branches almost only from the base and the stems grow slowly upwards, needing some support when tall, and bearing banana-like leaves which also have the habit of being torn into ribbons between the lateral veins. The extraordinary "crane-flower" inflorescences are produced laterally, one or two at a time, when the stem has reached more than about 8 feet high. The boat-shaped horny bracts, nearly a foot long, are reddish brown, and the flowers, several in each bract, bathed in mucilage, open successively, the petals being white. This species, with its white flowers and elongated stem, is more closely related to the species of the Natal coast and of the Cape forests than it is to the better known semi-karoo "stemless" brightly coloured "crane-flowers" of the eastern Cape Province.

Zingiberaceae The Ginger Family

Our only member of this mainly tropical Family is *Kaempferia aethiopica*, a bulbous and "orchid-like" plant with mauve flowers three inches long rising from the surface of the ground. It is so far only known from one locality in Swaziland, not far from Balegane.

Orchidaceae The Orchid Family

This is represented in Swaziland by a considerable number of species, both terrestrial and epiphytic. The majority of them show affinities with the more tropical parts of Africa; but at least three genera, *Disa*, *Satyrium* and *Habenaria*, have southern relationships, being mostly inhabitants of the coastal regions of the Cape Province, especially the south-west Cape where, in a winter rainfall, species occur which bear a great similarity to those of our summer rainfall country.

Most of our terrestrial species inhabit upland localities, in the mist-belt, on moist slopes or in swamps, or among rocks where the soil is protected from undue evaporation. One of the most striking of these is *Disa nervosa*, whose tall bright pink erect trusses of flowers are conspicuous in grassveld in January and February. *Satyrium atherstonei* is a swamp species with both the flowers and the deflexed bracts white. *Satyrium cristatum* is perhaps the most plentiful species, flowering from December to April, with dense spikes of small flowers ranging from white to pink with various markings. *S. macrophylla* is a scarce species, with a pair of large soft leaves and a dense leafy spike of pink flowers, some-

times reaching 3 feet in height, and *S. neglectum* is similar but more slender. Some of the Habenarias are very curious plants with their green or white flowers of "wasp-like" form, e.g. *H. caffra*, *H. cornuta* and *H. clavata*. Most of the species of these genera occur in open situations, but a few grow and flower in dense forest shade, e.g. the green *Habenaria malacophylla*, and the somewhat similar *Satyrium parviflorum*.

There are several terrestrial orchids which inhabit the humus and fallen litter beneath trees. These are usually scarce in the absence of suitable habitats, but one place is known where no fewer than six distinct species occurred within a few square yards: these belong to several genera, viz. *Disperis*, *Liparis*, *Brownleea* and *Cynorchis*. This unique habitat has now been destroyed by tree-felling.

A strikingly beautiful orchid, recently discovered in Swaziland, is *Calanthe natalensis*, with a tuft of large broad dark green slightly pleated leaves and a loose inflorescence of mauve flowers: it is only known so far in Swaziland in deep shade in one montane forest.

Finally, among the terrestrial orchids, the genus *Eulophia* is noteworthy on account of the fact that it has every appearance of being derived from epiphytic ancestry. Several species have the swollen stems known as pseudobulbs which are so frequent among the "tree-orchids", and the roots are covered with the white spongy absorbent tissue which is closely similar to that of the clasping roots of the epiphytes, though they have lost their clasping function. The erect inflorescences in *Eulophia*, however, are of a definitely terrestrial type. Some of them are very handsome, especially the yellow and brown *E. streptopetala* which may reach 4 feet high. *E. speciosa* of the bushveld has large clear yellow flowers, and there are upland species with yellow flowers also, especially the rather frequent *E. ensata*. *E. clavicornis*, a small species with purplish flowers, appears early in spring (September-October), but most of the species are summer-flowering. *E. petersii* is a remarkable plant with very hard pseudobulbs and leaves, and an arching inflorescence up to 5 feet long with widely spaced brownish flowers with curled sepals: it grows in hollows in hot bare granite rocks in the bushveld; *E. porphyroglossa*, only found once so far in Swaziland, is another bushveld plant with erect inflorescences reaching 6 feet high.

Turning now to the epiphytic orchids, an outstanding species is *Ansellia gigantea*. This is a bushveld plant, forming immense clumps, sometimes 12 feet in circumference, in the forks of trees or sometimes attached to *Ficus* roots where they pass over rock surfaces. The stems are a foot long bearing broad fluted leaves with prominent veins, and the flowers are borne in a loose branching inflorescence and are usually clear yellow in colour, occasionally spotted with brown, appearing in winter and spring. Other epiphytic orchids are much smaller, down to the tiny *Angraecum pusillum* with translucent greenish flowers only about 1/12th of an inch across. A very attractive small species, perhaps the commonest on tree branches and vertical mossy rock surfaces in upland forests,

is *Polystachya ottoniana*, whose stems bear a string of round pseudobulbs, the pure white flowers being borne in small sprays in November. The pretty long-spurred *Mystacidium capense* grows on tree-Euphorbias and other trees in the bushveld. *Stenoglottis fimbriata* grows on mossy rocks in upland forests, and has a rosette of leaves closely pressed to the rock and a slender spike of mauve flowers produced in February and March. The two species of *Tridactyle* have graceful sprays of buff-coloured "spidery" flowers and are sometimes found in extensive patches on upland trees and sheltered rocks. *Listrostachys arcuata* is a more robust plant with ivory flowers, found on trees or even occasionally on the ground in hot river valleys.

All the epiphytic orchids have clasping roots which attach the plant firmly to the support: these roots are exposed to the air, but are clothed with a layer of white spongy tissue which soaks up water trickling over the rock or tree-trunk, carrying with it the products of decomposition of bark, leaves, etc. None of these orchids is truly parasitic: its host plant is merely a support and all its nourishment comes from outside.

Piperaceae The Pepper Family

Swaziland has members of two genera, *Piper* and *Peperomia*, both of which comprise great numbers of species in other parts of the world—*Piper* is said to have over 2,000, and *Peperomia* over 1,000.

Piper capense is our only species, a rather attractive dark green leaved shrub, sometimes slightly scandent, with white catkins of minute flowers; it occurs, somewhat seldom, in the dense shade of montane forests.

Our three species of *Peperomia* are very distinct, two of them, *P. reflexa* var. *capense*, and *P. retusa*, being abundant epiphytes on shaded tree-branches and rocks in montane forests. They are soft little plants, sometimes growing in extensive sheets on their supports, with small fleshy green leaves borne in pairs or fours, and minute flowers in erect green spikes an inch or two high. The third species, *P. arabica*, is much larger, but is also a soft herbaceous semi-succulent, found in hot low altitude valley-forests.

Salicaceae The Willow Family

Only one indigenous Willow, *Salix woodii*, is found in Swaziland. It is a straggling shrub or small tree which grows along riverbanks, but is never abundant. Male and female flowers are borne on separate trees. It seems to have no regular flowering season, the minute seeds with their fluffy white hairs escaping from the fruits at any time of the year.

Myricaceae The Sweet Gale Family

Myrica pilulifera is an evergreen shrub or small tree of rocky slopes in the highveld, seldom exceeding 3 or 4 feet on account of grass fires but occasionally

reaching 15 feet in height: the leaves have a faint pleasant scent when crushed: the male plant has short catkins, the female has round pill-like fruits. The other species, *M. brevifolia*, is an inconspicuous social shrublet of high mountain grassland.

Ulmaceae The Elm Family

Our only representatives are *Trema orientalis*, a graceful tree of upland forest margins, with spreading branches, dark green finely toothed leaves and small clusters of whitish flowers: and the very different-looking *Chaetachme aristata*, a rigid thorny shrub or small tree, occasional on stream banks in the bushveld. (The well-known "Candeboo Stinkwood", *Celtis kraussiana*, is likely to occur, but does not so far seem to have been recorded in Swaziland.)

Moraceae The Fig Family

There are about 10 species of Ficus (Wild Fig) in Swaziland, mostly good-sized trees of the bushveld and middleveld, though *F. ingens* and *F. petersii* sometimes ascend to the highveld in rocky or bushy areas. *F. ingens* is a small tree or irregular shrub, its roots usually clasping the rocks among which it grows: it is deciduous, the young leaves being brightly coloured in spring: the "figs" are borne among the new leaves. *F. petersii* is a "strangler": its seeds, probably carried by birds, germinate on the branches of other trees, and roots are produced which grow down to the ground, interlacing and fusing among themselves around the host-tree, and eventually strangling and killing it, by which time the *Ficus* has become self-supporting and can develop into a fine tree, sometimes 60 feet high. (A plant of this species established itself on the side of the stone wall of the old post office at Mbabane, putting down roots into the soil below.) *F. petersii* has hanging branches, long-stalked leaves and "figs" on the new leafy shoots. A somewhat similar tree, *F. brachylepis*, has been recorded near Balegane. One of the most frequent of the bushveld Ficus is *F. sycomorus*, the "Sycomore Fig", which is frequently left unfelled in African areas as a shade tree. It has a yellowish bark and the "figs" are borne in hanging clusters on the old trunks and branches. It can attain enormous size as a riverside tree, one specimen measured having a total spread of about 160 feet. *F. capensis* is another fine tree, also with "figs" borne on the old stems, occurring usually in moist places. *F. soldanella* is a rock-clasper in the bushveld, with handsome heart-shaped leaves: it appears to be rare. *F. sonderi*, much more frequent, is a fair-sized tree of rocky situations, especially in the middleveld, and has shaggy brownish hairs on the young stems, leaves and figs.

The genus *Ficus* can be often recognised by the white latex which exudes from cut surfaces (though this is by no means a decisive test, as some other leafy trees also have white latex).

Urticaceae The Nettle Family

This family has a few species in Swaziland, some of them armed with fiercely stinging hairs. Of these the most striking is the shrubby *Urera tenax*, occurring in rocky situations, sometimes in full sun, sometimes in shade, with rigid stems, broad toothed leaves, and panicles of small pinkish flowers: it yields a very strong fibre, obtained by chewing strips of bark! *Fleurya mitis* and *Girardinia condensata* are also plants of partial shade, with stinging hairs, and fortunately rather scarce.

On the other hand, *Australina acuminata* is a soft insignificant herb, abundant on some forest floors.

Proteaceae The Protea Family

This great Southern Hemisphere family has its South African headquarters in the Cape Province (other members of it are found in Australia, New Zealand, Southern Pacific Islands and South America, leading to the theory of an Antarctic origin for this and other families with a comparable distribution). There are many species of *Protea* and *Faurea*, however, in tropical and subtropical Africa, including some in Swaziland. We also have one species of the typically "Cape" genus *Leucospermum*, viz. *L. gerrardii*, which occurs here and there on rocky outcrops in montane regions: it is a small woody plant, never exceeding about a foot in height, probably owing to repeated grassfires, and the "pincushion" flowerheads, produced in October, are attractive with their pinkish-yellow corollas and orange-red styles.

Three species of *Faurea* occur here, their dense elongated inflorescences looking very unlike the ordinary idea of a typical Proteaceous flowerhead. *F. galpinii* is a small tree with whitish inflorescences 4–6 inches long, and is found in forest margins in the high mountains on the Transvaal border at altitudes of 5,000–6,000 feet. *F. speciosa* is a more robust small tree, found scattered on steep hillsides at somewhat lower altitudes, down to about 1,500 feet: it has leathery leaves up to 8 inches long $\times$ $3\frac{1}{2}$ inches wide, and cream-coloured flowers in massive inflorescences up to 9 inches long and 2 inches in diameter. The third species, *F. saligna*, is definitely scarce in the Territory.

Six or seven species of *Protea* occur in Swaziland, all shrubs or small trees of upland slopes (though *P. gaguedi* may range from 5,000 feet down to 2,000 feet). The smallest species is *P. simplex*, a semi-erect plant with slender stems seldom exceeding a foot in length (probably owing to burning) and small white or pinkish flowerheads less than two inches long: a prostrate plant of upland rocky outcrops may be a distinct species or may be better regarded as a variety or form of *P. simplex*. The largest species is *P. roupelliae* which is a small robust tree up to about 10 feet high, with noticeably silvery leaves and dull pinkish flowerheads about 4 inches long, scarcely overtopping the uppermost leaves. This as well as two other robust species, *P. gaguedi* and *P. rhodantha*, often grow

socially on open hillsides: all three species have a wide distribution in the eastern and central upland regions of South and Central Africa, *P. gaguedi* even extending into Abyssinia. A distinct Swaziland plant with drooping narrow curved leaves is regarded as a variety (var. *falcata*) of *P. rhodantha*. *P. gaguedi* can be distinguished by its whitish velvety coating on the outside of the inflorescence bracts, absent in *P. rhodantha*, which is hairless both on leaves and bracts. The last species is *P. multibracteata*, which occurs sparingly on the Lebombo Hills, where the other species appear to be absent.

Loranthaceae The Mistletoe Family

All our Loranthaceae are partial parasites, growing mainly on woody plants to which they attach themselves by suckers which penetrate the tissues of the host-plant, true roots being absent. They have green stems and/or leaves, the chlorophyll in which enables them to assimilate carbon-dioxide from the air, but their mineral requirements are obtained from the host-plant. They form bushy brittle masses on the host's branches. The species of *Viscum* (mistletoe) have relatively small or no leaves and insignificant greenish flowers, whereas the species of *Loranthus* have much larger leaves and often showy tubular flowers produced in dense masses. The fruits in both cases are round berries which contain a very viscid substance: the seeds are distributed by birds which wipe them off their beaks on branches to which they adhere and on which they germinate. Some species are confined to a particular species of host-plant; others are able to infest a number of different host species.

Our most frequent "mistletoe" is *V. verrucosum* which has leafless but jointed green stems and white berries covered with small warts: it is apparently confined to species of *Acacia* and occurs in bushveld and middleveld. Our other three species have well developed leaves and brightly coloured berries, and occur on several different host-plants.

We have more than half a dozen species of *Loranthus*, some of which have stout woody stems, leaves several inches in length and clusters of conspicuous flowers. *L. dregei* has leaves covered with a grey felt of minute star-like hairs, and long cream-coloured flowers tinged with pink: it occurs on *Trichilia emetica* in Swaziland, and is also said to be found on species of *Acacia*. *L. galpinii* has a yellow corolla with long reflexed lobes showing the red style and stamens: it parasitises the "Marula", *Sclerocarya birrea*, and also *Trichilia emetica*. *L. kraussianus*, whose flowers are green with orange tips, is found on Acacias and some other trees. *L. minor* is an unusually slender and small-leaved species with small clusters of slender flowers shading from pinkish to yellowish at the tips: it has been found on *Ehretia rigida*. *L. rubromarginatus* is a very robust woody plant found on several different hosts, and having large clusters of bright red flowers. *L. zeyheri* is another handsome species with grey leaves and flowers which are nearly three inches long, the tube white, pink or purplish and the

throat yellow inside: it is also found on Acacias (which seem to be specially suitable host-plants for many Loranthaceae), and on some other hosts.

Santalaceae The Sandalwood Family

Our principal genus is *Thesium* of which we have about 15 species, found over the whole country, all rather insignificant switch-like plants from a few inches to about 2 feet high, with green stems and leaves which are very small or almost absent. The flowers are small, white or greenish. Many of them (perhaps all) are semi-parasites, their roots being attached to the roots of various host-plants below ground: the actual union is often very difficult to demonstrate. One species, *T. resedoides*, however, parasitises the underground stems of Sugar Cane in some plantations in Swaziland, apparently causing the death of the Cane. Separation of the species demands very careful botanical analysis, and no useful purpose would be served by attempting it here.

Osyris lanceolata is a large grey-green-leaved shrub, found in the Komati valley, and *Osyridocarpus schimperianus* is a straggling shrublet of the bushveld.

Olacaceae The Sour-plum Family

Olax dissitiflora is an attractive small tree of the deep valleys in the Lebombo range, having hanging branches and bright red hanging fruits. *Ximenia caffra* var. *natalensis* is a very spiny irregular shrub or small tree with bright orange or red stone-fruits which can be made into preserves with an astringent taste. It occurs in the bushveld and in bushy places up to about 2,000 feet. Its appearance and degree of spinescence differ considerably according to locality, and varieties have been distinguished.

Hydnoraceae The Jackal's-food Family

A species of *Hydnora* probably *H. solmsiana* has been found in Swaziland, but is only represented by a few scraps in the Herbarium of the Botanical Survey. *Hydnora* is one of the most remarkable genera of totally parasitic flowering plants: it is probable that the Swaziland species is parasitic on the roots of an *Acacia* in the bushveld, but this needs confirmation.

Polygonaceae The Dock Family

Two species of *Rumex* are indigenous in Swaziland, and some aliens also occur, sometimes plentifully, as weeds of cultivation. *R. woodii* is a "dock-like" plant of upland swamps, with greenish flowers. *R. sagittatus* is a rampant herbaceous climber, found occasionally on forest margins in the highveld, and having large clusters of small reddish winged fruits in the late summer. Three species of *Polygonum* occur in swamps and by streams, all having slender bright red inflorescences. *Oxygonum dregeanum* is a rather attractive herbaceous perennial of the highveld, with white flowers which are bright pink below.

Amarantaceae The Amaranth Family

About a dozen species of this family are indigenous in Swaziland, and a number of introduced species of *Amarantus*, *Alternanthera*, etc., occur as weeds of cultivation and in disturbed ground. Most of the species are "weedy" in appearance and are often troublesome on account of the hooked fruits or burrs which attach themselves to clothes and to the hair of animals and are so distributed. Some of them make good feed for livestock and are sometimes cooked as "spinach" ("Imbuya") by Africans. A few species of *Hermbstaedtia*, *Cyphocarpa*, *Cyathula* and *Gomphrena* have rather conspicuous white shining inflorescences. Some members of this family are undeservedly popular garden plants of easy cultivation.

Nyctaginaceae The Bougainvillea Family

Commicarpus pentandrus is a conspicuous roadside weed in parts of the bushveld and also tends to infest cotton fields. It is a prostrate plant with soft juicy leaves eaten by livestock, and bright magenta flowers. *C. africanus* is a scrambling plant with white flowers, also occasional in the bushveld. *Mirabilis jalapa*, the well-known multicoloured "marvel of Peru", is an alien plant found as an escape from gardens.

Phytolaccaceae

Psammotropha myriantha is an "alpine", found from 5,000 feet altitude upwards, with dense tufts of slender leaves an inch or two long and minute buff-coloured flowers in small clusters on branching inflorescences. *Gisekia africana* is a sprawling white-flowered weed-like plant of sandy ground in the Lebombo poorts.

Aizoaceae The Mesembryanthemum Family

This family includes a number of small flowered rather weedy plants and also a few species of the vast old mainly Cape Province genus Mesembryanthemum, now divided into many genera according to the various opinions of the botanists dealing with them. Almost all our species are plants of the bushveld, often of saline soils. Species of *Aizoon*, *Corbichonia* and *Hypertelis* are weeds of disturbed soils. The succulent-leaved "Mesembryanthemums" include *Aptenia cordifolia*, a scrambling plant with bright magenta flowers, three or four trailing species of *Delosperma* with white flowers, all at low altitudes, one species of *Delosperma*, *D. cooperi*, with magenta flowers, found occasionally in mountain rock crevices, and another rather handsome species, *D. sutherlandii*, with tuberous roots and pink flowers, growing locally on stony mountain ridges above 5,000 feet altitude.

Portulacaceae

Our four members of this family are very distinct from one another. *Talinum caffrum* is a plant with a large tuber and slender aerial branches bearing scattered yellow flowers opening in the evening. *Portulaca quadrifida* is a prostrate mat-like annual with yellow flowers found on hot sandy or saline soils. *Portulacaria afra*, the well-known "spekboom" or "elephants-food", is a stout shrub or small tree with round succulent leaves and panicles of small pink flowers: it occurs in hot lowveld valleys and is sometimes used as a hedge plant round kraals, etc. The common *Portulaca oleracea* is an introduced garden weed and is sometimes used as a substitute for spinach.

Caryophyllaceae The Carnation Family

We have one "pink", a variety of *Dianthus mooiensis*, which is a straggling plant with pink fringed petals, and seems to be scarce. Three species of *Silene* occur: *S. burchellii*, a slender perennial of upland grassveld with white or pale mauve flowers, usually all turned to one side of the inflorescence, and opening in the evening; and *S. capensis* and *S. undulata* with larger white or cream flowers, opening and scented in the evening. There are several introduced annual weeds of cultivation belonging to this family—chickweeds, spurreys—with inconspicuous flowers.

Nymphaeaceae Water-Lily Family

Only one species, *Nymphaea capensis*, occurs in stagnant pools and back-waters in the bushveld rivers, but appears to be scarce. It roots in the mud, the round leaf-blades float on the water and the blue or blue-mauve scented flowers are carried a few inches above the surface. Flowers and leaves vary much in size.

Ranunculaceae The Buttercup Family

Two species of *Ranunculus*, both plants of upland swamps, occur. *R. multifidus* has divided, slightly hairy leaves and is a rather straggling plant. *R. cooperi* is much more robust with "nasturtium-like" round leaf-blades and handsome yellow flowers on stems sometimes 3 feet high. There are also two species of *Clematis; C. brachiata* is a rampant woody climber in forest clearings and bushy places above 3,000 feet: it bears large quantities of scented white flowers, and the feathered fruits which follow are also very conspicuous. *C. oweniae* is similar but smaller in all parts, and seems to be scarce. *Knowltonia transvaalensis* is a tall white-flowered herbaceous perennial occurring sparsely on moist upland hill-sides. *Thalictrum rhynchocarpum* is a graceful plant, occasionally found in upland forest shade, with "maiden-hair"-like foliage and minute flowers and fruits at the tips of the hair-like branches of the large open inflorescences.

Menispermaceae

This family of mainly tropical plants is represented in Swaziland by four or five species of climbing plants with inconspicuous greenish flowers: these are unisexual, male and female flowers being borne on different plants. The most striking species is *Stephania abyssinica* on account of its handsome green leaves whose stalk is attached to the broad blade near its middle: it is found climbing up bushes near streams in altitudes of about 4,000 feet. Two species of *Cissampelos* are vigorous climbers: *C. mucronata* has velvety grey leaves and occurs mainly near streams at low altitudes: *C. torulosa* has glabrous green broadly heart-shaped leaves and is found on the margins of forests in the high-veld. Another rampant climber, sometimes smothering branches of trees in the bushveld, is *Cocculus hirsutus*.

Annonaceae The Custard-Apple Family

Annona senegalensis is an indigenous small tree whose flowers have three tough petals which are greenish outside and cream-coloured inside, and are easily detached. The fruit is a compound one which becomes fleshy and orange-coloured when ripe and makes pleasant aromatic eating. (Another species, not indigenous, is *A. reticulata*, the well-known "custard-apple".) *A. senegalensis* is mainly a bushveld tree, but there are a few plants in a valley near Mbabane at an altitude of 3,500 feet. *Popowia caffra* is a somewhat scarce tree of upland forest margins.

Monimiaceae

Xymalos monospora, the "lemonwood", is frequent in forests in the mist-belt, e.g. near Mbabane. It is a good-sized tree, but the timber is of little value, and the flowers (male and female) are minute and inconspicuous.

Lauraceae The Laurel Family

Cassytha filiformis (the "nooishaar" or "devils sewingthread") is an aberrant member of this family which mainly comprises large trees and other woody plants. It is an almost complete parasite, somewhat similar to "dodder", its thread-like leafless orange or pale greenish stems clasping and bearing suckers which penetrate the twigs of many different host-plants. It is very abundant in the Cape, but in Swaziland it has only been met with in one limited locality, Mbuluzi Poort. The well-known "stinkwood", *Ocotea bullata*, occurs in the adjoining Barberton district, but has not so far been noticed in Swaziland.

Cruciferae The Cabbage Family

This family is represented here chiefly by alien weeds and garden escapes (*Lepidium*, *Coronopus*, etc.). *Heliophila rigidiuscula* is a member of the well-

known "wild flax" genus of the Western Cape: it is a slender erect perennial with narrow leaves and 4-petalled mauve or white flowers, found sparingly in upland swamps, occasionally among rocks and near streams.

Capparidaceae The Caper Family

This family is well represented in Swaziland by a number of plants, mostly woody shrubs, small trees and scramblers, furnished with formidable thorns. Species of *Cleome*, however, are herbaceous and tend to become weeds of disturbed land; *C. diandra* is a showy weed of the south eastern bushveld, having bright yellow flowers of curious shape; *C. monophylla* and *C. macrophylla* are less conspicuous. *Cladostemon kirkii* is a small tree with a remarkable drumstick-like fruit, so far only observed in Ngwavuma Poort. *Boscia albitrunca* is a large tree of the bushveld near Sipofaneni, but apparently rare; our plant may be a climatic variant of the "witgatboom" of the Kalahari, etc., but it is possibly a distinct species. *Capparis* and *Maerua* are closely related genera whose flowers owe their conspicuousness to their numerous white stamens. Our two species of *Capparis* are woody scramblers, hooking on to other vegetation by their pairs of hooked prickles: *C. tomentosa* is a robust plant with velvety leaves, showy flowers and fruits over an inch in diameter on long gynophores: *C. transvaalensis* is smaller in all parts but more branched. Both occur in the bushveld, but *C. transvaalensis* is occasionally found at altitudes of about 3,000 feet. Our species of *Maerua*, of which we have six—all plants of low altitudes—are thornless shrubs or scramblers, sometimes with trifoliate leaves, and some species have remarkable fruits: in *M. angolensis* the fruit may be 4 inches long and resembles a string of beads; in *M. caffra* it is oval, the size of a plum, and has a rough warty surface; *M. rosmarinoides* is a dense shrub with long very narrow leaflets, usually in the bushveld, but straying to about 3,000 feet. *Cadaba natalensis* is a tangled and scrambling shrub with curious but rather inconspicuous flowers: the stamens are borne about half way along the gynophore: the fruits are irregularly beaded and split to show bright red seed-coats.

The structure called the gynophore is characteristic of the Capparidaceae: it is a slender stalk on whose end the ovary is borne, often high above the stamens. In *Capparis tomentosa* and some other species it reaches $1\frac{1}{2}$ inches long, and in *Cladostemon* it becomes very much thickened and woody, and reaches 4 inches long in the fruiting condition.

Droseraceae The Sundew Family

The genus *Drosera*, well-known on account of the leaves which trap and digest insects, is very widely spread over the globe and is represented in Swaziland by two (perhaps three) species, occurring sparingly in upland swamps and moist spots on mountain slopes. One species, *D. madagascariensis*, is a slender plant with spoon-shaped reddish tentacle-bearing leaves scattered along the

stem which ends in an inflorescence of delicate magenta or pink flowers: the whole plant may be eighteen inches in height, but is usually less. Another species, *D. burkeana*, has small leaf-rosettes up to 2 inches in diameter, produced flat on the peaty soil, and the only stem is that of the inflorescence which may be eight inches long or less, bearing flowers ranging from magenta to pale pink. *D. collinsiae* is also a "stemless" plant, possibly a growth form of the preceding species, mainly distinguished by the long slender leaf stalks.

Insects have been seen caught by the sticky leaf-tentacles of both *D. madagascariensis* and *D. burkeana* in Swaziland.

Crassulaceae

Nearly all the members of this large family have succulent leaves, and the majority of them grow in situations in which they are subject to longer or shorter periods of drought, which succulence enables them to survive. In Swaziland we have representatives of three genera, the most numerous in species being the mainly South African genus *Crassula*, of which we have about twenty species of widely varying form. Nearly all are plants of the higher altitudes, above 3,000 feet, and most of them grow on, among, or in the shelter of rocks.

The most striking *Crassula* is *C. acinaciformis*, which forms a large Aloe-like rosette, often over 2 feet in diameter, of up to 40 soft unspotted tapering leaves: after a year or two in growth it puts up (at midsummer) a huge dome-shaped inflorescence which may be as much as 18 inches in diameter on a stem up to 5 feet in height, bearing innumerable small cream-coloured flowers. At the other extreme we have the button-like *C. compacta*, forming little solid growths, about 2 inches in diameter, composed of 4 or 6 pale leaves, flat on the rocks and in crevices at altitudes above 5,000 feet: the inflorescence, a few inches high, is produced in November, and bears white star-like flowers in clusters separated by internodes. There are several "mossy" species: *C. browniana* forms spreading interlacing loose reddish mats on the surface of rocks in upland forests; *C. setulosa* is a typical tiny "alpine" of rock crevices at high altitudes, with bristly leaves and flowers; *C. muscosa* and *C. transvaalensis* are small tufted plants of rock outcrops, the former in the mist-belt with soft leaves, the latter at lower altitudes with rigid almost prickly leaves. *C. argyrophylla* and some related species have compact firm thick leaves and colonise exposed horizontal rock surfaces in the mist-belt. *C. parvisepala* is a branching soft-stemmed succulent-leaved shrublet found among rocks in the mist-belt. Other species occur in grassveld or in the shelter of rocks in upland areas, such as *C. spectabilis*, rather like *C. acinaciformis* on a smaller scale, the handsome *C. vaginata* with bright yellow flowers, *C. rubicunda* with reddish stems and flowers, and one or two other species which form rosettes in autumn and produce their inflorescences in the following summer. Finally, *C. thorncroftii* and *C. lineolata* are trailing plants

with well-spaced pairs of leaves, found, unlike most species, in moist situations, the former on the ground and near streams in montane forests, the latter in open upland swamps and near springs.

The genus *Kalanchoe* can usually be distinguished from Crassula by its flowers having 4 petals instead of 5. *K. thyrsiflora* is a striking plant with broad grey basal leaves and a dense inflorescence two or three feet high covered with a mealy white powder and having yellow flowers: it occurs rather erratically among montane rocks. *K. luciae* has similar leaves. *K. rotundifolia* is a smaller straggling plant with erect inflorescences of bright orange or brick-red flowers, found on rocks in moderate shade. *K. paniculata* is a bushveld plant with large basal toothed leaves which throws up an erect inflorescence, up to 6 feet high, of greenish yellow flowers.

The genus *Cotyledon* is somewhat scarce in Swaziland, but two rather similar species, *C. wickensii* and *C. zuluensis*, occur sparingly in the bushveld. They are erect robust plants with pairs of broad succulent more or less glabrous leaves: the flowers are borne in a branching cluster at the top of a tall peduncle, and the individual flowers are rather pendulous, about an inch in length, tubular, 5-petalled, of a yellowish pink colour.

Saxifragaceae The Saxifrage Family

Choristylis rhamnoides is our only species belonging to this family. It is a very different plant from the typical Saxifrages, and is only included in this family (by some, not all, botanists) because of its floral characters. It is a dense dark shrub or scrambler with strongly veined leaves spread out in two rows along the young branches, and clusters of small greenish flowers. It is found in bushy places and along forest margins at altitudes from 3,500 ft. upwards.

Pittosporaceae The Pittosporum Family

This family is confined to Australasia except for the genus *Pittosporum*, to which our one representative belongs, and which has species in other Old World countries mainly in the southern hemisphere. Our *P. viridiflorum* is a handsome evergreen tree found occasionally in the forests in the mist-belt: it has abundant clusters of yellowish sweet-scented flowers in October and the yellow fruits burst open to expose the sticky red angular seeds in the summer.

Myrothamnaceae

This family consists of only one genus, *Myrothamnus*, which itself comprises only one species, *M. flabellifolius*, a remarkable plant occurring in the summer-rainfall districts of South Africa, and extending as far north as Tanganyika, growing on bare granite surfaces and in rock crevices, locally abundant in Swaziland. It is a rather dense erect aromatic shrub reaching about 4 feet in height, but usually much less. The leaves are small and are folded like a fan,

and the minute flowers are borne in small erect cones or catkins in the young leaf axils. In dry weather the shrub is dormant and appears brown and lifeless, but after a shower of rain the leaves quickly unfold and show an attractive dark green surface, the process being reversed as the scanty soil dries out again. A dry branch may be cut and stood in water, and the leaves will unfold. It can then be taken out of the water and dried for a few days, when the experiment can be repeated: and this can be done with the same result three or four times. It is commonly known as a "resurrection plant". (There are others which show similar capabilities—e.g. the well-known "rose of Jericho", *Anastatica hierochuntina*, and some species of *Selaginella*, e.g. one which almost invariably accompanies Myrothamnus on granite surfaces, *S. dregei*.)

Hamamelidaceae The Witch-Hazel Family

This is a widely distributed family, but continental Africa has only one genus, *Trichocladus*, and Swaziland has only one species, *T. grandiflorus*, which, however, is one of our most conspicuously beautiful trees. It occurs in our montane mist-belt forests, and when in flower, the tree stands out from the rest of the forest as a mass of white. The individual flowers have five narrow white petals up to an inch long, often somewhat waved at the edges, and the centre of the flower is deep pink: they are borne in dense clusters, and flowering takes place sometimes as early as August, sometimes as late as November.

Rosaceae The Rose Family

There are several members of the Rosaceae in Swaziland, but the majority of them bear no superficial resemblance to the roses, apples, pears, strawberries, etc., originally northern hemisphere plants, and are included in this family for technical reasons which only appeal to botanists. Only the genus *Rubus* (brambles) with conspicuous petals and the well-known compound fruit (miscalled a berry) is "typically" Rosaceous. Of this we have several species, some apparently indigenous, others escaped from cultivation, originally introduced for their fruits, and sometimes liable to become troublesome weeds. *R. intercurrens* is perhaps the most conspicuous native species with its white stems and white undersurface of the leaves: it is frequent among boulders in the mist-belt. The nomenclature of the introduced species is too uncertain to be quoted here. *Agrimonia odorata* is an erect herbaceous plant with bright yellow flowers, occasionally found in bushy places in the hills. *Parinari capensis* ("sand-apple") is a small prostrate woody plant with most of its stems below ground and pale leaves, whitish beneath, locally abundant on rocky exposures in the highveld: it produces loose clusters of small whitish flowers followed by a more or less edible fruit.

All our other Rosaceae whose flowers are inconspicuous, often without petals, differ very much among themselves. The species of *Alchemilla* are soft

herbaceous plants with lobed leaves found among taller vegetation in upland swamps: the flowers are minute and greenish. *Leucosidea sericea* (Afrikaans "ouhout") is one of the very few woody shrubs or small trees in Basutoland where it is locally abundant, but in Swaziland it has only been met with in two localities, a few miles north west of Mbabane. It is recorded from a few places in the Transvaal also. *Cliffortia* is a genus whose headquarters are in the Cape Province, but we have four species in Swaziland, all shrubby with slender branches and small leaves (as befits "Cape" plants) and insignificant flowers. One of them, *C. strobilifera*, extends right through the coastal belt to the Cape Peninsula: it is a riverside shrub with somewhat grass-like small leaves; its "strobili" are insect galls, not inflorescences. The other three species are heath-like plants with stems densely covered with tufts of very small leaves. They all occur, sometimes abundantly, along stream-banks and in swamps in the high-veld. *Prunus africanus*, on the other hand, is a tall handsome evergreen tree, found occasionally in montane streamside and relict forests—its scarcity perhaps due to its value for timber. The whole tree, and especially the white kernel of the small spherical black fruit, smells strongly of hydrocyanic acid when crushed or cut: hence the common name "bitter almond".

Leguminosae The Pea Family

This is the second largest family of flowering plants (Compositae being first), including a vast range of species spread nearly all over the globe. Many botanists think that it should be divided into three families: others regard these as three sections of one comprehensive family, and as a matter of convenience this latter plan is adopted here.

A. *Leguminosae: Section Mimosoideae*

In this section the individual flowers are small and regular in form, but are massed in dense heads: corolla and calyx are insignificant, but the very numerous stamens are white or coloured and project far beyond the perianth, and it is to them that the whole inflorescence owes its conspicuousness. The result is the well-known fluffy-looking inflorescences of *Acacia* ("wattles", "Mimosa", "thorn-bushes", etc.) and its allies. The fruits are definitely of the "pod" or "legume" type, and it is for this reason among others that these plants are included in the Leguminosae, though their flowers look so different from those of the peas and beans.

Acacia is the most important genus, not only in Swaziland, but over almost the whole of Africa, as well as having very many species ("wattles") in Australia, some of them cultivated for tanning bark or timber, and others introduced and running wild in unrestrained fashion in the Cape and elsewhere. Nearly all the African species have thorns of various types (hence the name "thorn-bushes"), a feature no doubt correlated with the vast population of browsing animals

which formerly roamed the continent: the same type of defence is found in many other African shrubs, trees and climbers. Several species have both straight spines and recurved hooks, and once caught in their branches disentanglement is difficult. In Swaziland, as well as in vast areas of Africa generally, the Acacias are the prevailing trees of what is commonly called thornveld or savannah. In this type of vegetation the trees are usually spaced well apart, and owing to the wide spaces between them and the fact that they only cast a light shade, the ground is covered with grasses and other perennial herbaceous plants. In typical thornveld Acacias are almost the only trees, but the actual species of Acacia may vary in different areas. The so-called "middleveld" of Swaziland is typically thornveld, but over the greater part of it the trees have been eradicated for purposes of cultivation. In certain areas of the lowveld too, especially in South-eastern Swaziland, an Acacia, the "knobthorn", *A. nigrescens* is the prevailing tree, growing to considerable size and contributing greatly to the beauty of the landscape, especially in early spring when covered with white flowers followed by the leaves of a lively green. In the middleveld *Acacia karroo* is an abundant species; it is a good-sized shrub with yellow flowers about December and pairs of long white spines. Altogether there are about twenty species of Acacia in Swaziland. A few of the most distinctive may be mentioned. The "fever-tree", *A. xanthophloea*, is well known as a waterside tree of the lowveld, with its conspicuous greenish-yellow smooth powdery bark: it grows to a great size, and splendid specimens occur in the poorts of the Lebombo range. Another big species of the lowveld rivers and ravines is the handsome *A. burkei*. A striking-looking flat-topped small tree, with small round heads of white flowers, straight white thorns, up to 3 inches long, and curled pods, locally frequent in the bush-veld, e.g. near Maloma, is *A. tortilis*. *A. senegal* is a more sturdy, rather flat-topped tree, plentiful near Nokwane and occasional in the bushveld along the foot of the Lebombos.

Two other genera, closely related to *Acacia*, are *Dichrostachys* and *Albizia*, both represented in the bushveld. *Dichrostachys cinerea*, the "sickle-bush", of which there are two or three varieties, is notorious for its powers of encroachment in cattle country. It is a "thorn-bush" resembling many Acacias, but the flowers are borne in elongated spikes hanging from the branches, mauve or white at the base and yellow at the tip. *Albizia anthelmintica* is a rigidly branched shrub, thornless but with lateral branches tapering to sharp points, conspicuously covered with white-stamened flower-clusters in September, the leaves developing later: it occurs locally in the bushveld, e.g. near Border Gate. *A. versicolor*, on the other hand, is a handsome tree with large white-stamened flowers produced in November along with the large grey pinnate leaves: trees occur here and there in Swaziland below 2,000 feet altitude. The genus *Elephantorrhiza* is clearly related to Acacia, but our species, *E. elephantina*, has a large woody rootstock which produces erect shoots a few feet high bearing elongated spikes of white

flowers near the ground. It occurs mainly around rocky outcrops between 3,000 and 4,000 feet altitude.

B. *Leguminosae: Section Caesalpinoideae*

This section comprises plants with some of the usual leguminous features—the "pod-like" fruit in great variety, the usually pinnate or bipinnate leaves; but the flowers—most of them conspicuous through size and colour of corolla—are wide open, not having the folded "keel" of the Section Papilionatae, and the number of stamens is normally less than the ten typical of that Section.

The most striking Swaziland member of this Section is the celebrated *Bauhinia galpinii* which occurs throughout the Territory at altitudes between 1,500 and 3,000 feet. It is a straggling plant, sometimes climbing up to 20 feet high, but normally forming tangled thickets among other trees: the flowers are of various shades of orange-red or tomato and are highly conspicuous during December and January. Two other species of *Bauhinia* occur, *B. fassoglensis* and *B. kirkii*, both of them strong tendril climbers with large yellow flowers, but both are very local and seldom met with. Another conspicuous genus is *Schotia* which is represented by two species in the bushveld. *S. brachypetala* is a fine deciduous tree which produces large clusters of crimson flowers on the bare branches in September. The colour is due to the sepals and stamens, as the petals are minute: the flowers produce a great deal of nectar which falls in a shower if a branch is shaken. The pods are large and woody and contain a few large flat hard seeds partly enclosed in cup-like fleshy arils. The other species, *S. capitata*, is a shrub, and the clusters of crimson flowers are produced in September along with the pinnate leaves. *Afzelia cuanzensis*, the "Rhodesian Mahogany", is found occasionally in the deep valleys in the Lebombo Mountains. It is a fair-sized tree, the flowers being remarkable for only having one pinkish veined petal; and the seeds, which are borne in large woody pods and sometimes called "mahogany beans", are black and enclosed at one end in a bright red aril. The genus *Cassia*, nearly all yellow-flowered, includes two or three species which have run wild in Swaziland (e.g. *C. italica*, the source of "senna-pods", and the ubiquitous shrubby *C. occidentalis*): but there are indigenous species as well, especially the tall handsome *C. petersiana* abundant in the Ngonini area, and the highveld *C. mimosoides*, which is a small shrublet with feathery leaves and small clusters of yellow flowers borne at intervals along the branches. The leaves in this species are sensitive to the touch, as in the case in the "Sensitive Plant", *Mimosa pudica*. *Peltophorum africanum* is another handsome deciduous tree, up to about 20 feet in height, scattered through the bushveld and occasionally reaching the middleveld. It has bipinnate leaves resembling a wattle and the bright yellow flowers are borne in erect terminal clusters: the main flowering season is November–December, but flowering trees are occasionally seen in June–August. *Caesalpinia decapetala*, the "Mau-

ritius Thorn", has been planted as hedges in the middleveld, e.g. near Matapha, and threatens to become an unpleasant weed. It is a rampant scrambler, has formidable hooks on its bramble-like stems, and has large clusters of handsome yellow flowers.

C. *Leguminosae: Section Papilionatae*

The truly pea-flowered Section of Leguminosae comprises a great number of genera and species, scattered all over the globe, especially in temperate regions. In Swaziland we have about 38 genera and 175 species, mainly in the highveld and middleveld. Almost all of them have the characteristic pea-flower, whose corolla consists of five petals—one posterior, the "standard", two lateral, the "wings", and two anterior adhering by their edges to form the boat-shaped "keel" in which lie the stamens and pistil: the fruit is a "pod" or "legume" as in the other two Sections, though it varies greatly in form, texture, number of seeds, etc. etc. Some of the Papilionatae are trees, but far greater numbers are shrubs, climbers (both tendril-climbers and twiners) or herbaceous. Out of the 175 or so species and varieties occurring in Swaziland a few of the most striking may be specially mentioned.

The genus *Erythrina* is represented by three handsome species, two being trees and one a shrub. *E. lysistemon* is the Swaziland "kafirboom", a deciduous tree, occasional in highveld and middleveld, rarely reaching 30 feet in height, with brilliant scarlet flowers in dense spikes terminating the spreading branches, produced in the winter months (June–August) while the tree is leafless. The leaves quickly follow the flowers and the curious pods, constricted at intervals, each joint containing a single bright red shiny seed, are ripe in December. The stems bear scattered prickles. Owing to the ease with which pieces of thick stem take root, lines of these trees are often seen, the stems having been used as fencing poles. This species is often confused (e.g. on the current Swaziland postage stamp) with the very similar *E. caffra*, the "kafirboom" of the Eastern Cape. Another Erythrina, *E. latissima*, occurs as scattered trees, in the middleveld or highveld; it is nowhere abundant, though conspicuous on account of its enormous grey leaves whose three leaflets each often reach a foot in diameter. The flowers are scarlet and are borne in spring in dense woolly heads on short lateral branches. The fruits and the red seeds are much longer than those of *E. lysistemon*. The third species, *E. humeana*, is a little-branched shrub of the bushveld, rarely more than a few feet in height: its long leaf-stalks bear hooked prickles like bramble-thorns: the flowers are borne in dense spikes on long erect peduncles, and are scarlet in colour though smaller than those of the tree species.

A strikingly beautiful tree, growing in great numbers in parts of the bushveld, is *Bolusanthus speciosus*, the "South African Wisteria". This is usually not more than about 20 feet high, though it can grow to twice the height. The flowers, appearing in September and October, are borne in long hanging Wisteria-like

clusters, and are of the same deep blue-mauve colour, and the pinnate leaves also hang loosely and are of a lively light green shade.

Our two species of *Pterocarpus* are noteworthy bushveld trees. *P. angolensis* is abundant at the upper edges of the bushveld, ascending rivers such as the Komati and Mbuluzi to about 2,500 feet altitude or even higher. It yields a valuable and popular timber known as kiaat, the yellowish sap wood changing to a warm dark brown heart wood, a feature taken advantage of in the Swazi handicraft bowls and trays. It is a very graceful tree, spreading and drooping at the crown, with long pinnate leaves which fall in the autumn; the bright yellow but short-lived flowers appear in early spring, followed by the new crop of leaves: the fruit is a one-seeded pod coiled into a circle and bearing a central tuft of sharp prickles on both sides: these often hang on the trees after leaf-fall. The second species, *P. rotundifolius*, is a very abundant and social tree on some hill-slopes in the bushveld, but a great proportion of the individuals are so heavily browsed by cattle that they do not reach flowering stage. Occasional trees, however, may grow to 30 feet or more in height, and then produce copious clusters of bright yellow sweetly scented flowers in mid-summer, with strikingly beautiful effect.

The Calpurnias are attractive trees found here and there in bushy places in the highveld and middleveld, with yellow "Laburnum-like" flowers.

Many of the Papilionatae are climbers, and a few may be mentioned. *Dalbergia armata* is a woody scrambling liana plentiful in the forests and degenerated forests of the highveld and middleveld, reaching and sometimes covering the tops of high trees with its long spreading branches. The stems reach four inches in diameter, but are relatively flexible and are formidably armed with groups of two or three stout thorns up to 3 inches long. The flowers are small and white and are copiously produced in November and followed by thin flat 1–2-seeded pods an inch or two long. *Abrus precatorius* is a slender woody climber whose seeds are the well-known bright red and black "lucky beans" or "jecquirity beans" used in bead necklaces. It occurs in the bushveld but does not seem to be common. Most of our Papilionaceous climbers, however, are herbaceous plants, annuals or with annual shoots, some of them with attractive flowers. *Dolichos lablab* is a vigorous climber with clusters of purplish flowers, often grown (but apparently not in Swaziland) for fodder and green manure. Several (though not all) species of *Rhynchosia* are twining plants, usually with yellow flowers. *R. caribaea* and its var. *picta* are the most conspicuous. Another climber found in the bushveld, but fortunately rare, is the notorious "hell-fire bean", *Mucuna coriacea*: the large pods of this plant are covered with a velvety coating of fine brown hairs which are easily detached when mature and enter the skin causing intolerable itching, or in severe cases madness or death in animals. Oil is said to be a remedy and so is rubbing the affected parts with dry soap. The young pods can be handled with impunity.

The great majority of Swaziland Papilionatae, however, are shrubby plants, seldom more than a few feet in height, or plants with a woody rootstock and aerial shoots developing in summer. They are nearly all plants of the highveld or middleveld, growing in the grass or as a constituent of "bushy places". The genera *Indigofera*, *Tephrosia* and *Pearsonia* are represented by numerous species: they have mostly rather small flowers, though the colours in some of the Indigoferas are unusual and distinctive. *Indigofera arrecta*, not frequent in Swaziland, is a source of indigo, and was introduced into India when the locally grown indigo plant (*I. tinctoria*) proved unpayable in competition with synthetics. One of the most attractive highveld shrubs, found usually on the margins of forests, is the blue-flowered *Psoralea pinnata*, a plant which extends as far as the Cape Peninsula where it is very plentiful. Shrubby Papilionatae are infrequent in the bushveld. Two of them, however, are attractive on account of their violet-coloured flowers, viz. the Acacia-like, but thornless *Ormocarpum trichocarpum*, whose small pods are roughly hairy, and the greyish-leaved corky-barked *Mundulea sericea*.

The Papilionatae also include a number of herbaceous plants, especially in the highveld, among them the small species of *Lotononis* and *Zornia* with bright yellow flowers showing up in the grass, and the larger species of *Vigna* and *Sphenostylis* with trifoliate leaves and rather large conspicuous bean-like pink or purple flowers, the semi-climbing *Sphenostylis marginata* being a conspicuously beautiful plant. Perhaps the most handsome of this group is *Argyrolobium speciosum* whose erect lupin-like spikes of yellow flowers are produced in valleys in the highveld especially after recent (but not frequent) grass-fires.

Comparatively few Papilionatae are swamp-plants, but of these *Aeschynomene wilmsii* may be mentioned as occasionally covering upland swamps to the exclusion of other plants, and also our only clover, a variety of the small magenta-flowered *Trifolium africanum* which is definitely rare, and the tall handsome pink-flowered *Pseudarthria hookeri*.

Geraniaceae The Geranium Family

This family, important in the Cape Province, is rather poorly represented in Swaziland, and like most other "Cape" families is practically confined to the highveld. Perhaps the most striking plant is *Pelargonium aconitiphyllum* which has a tuberous rootstock, basal leaves and tall peduncles bearing numerous bright pink flowers. The leaves of this species are highly variable in shape, and many attempts have been made to separate "good" species and varieties on this basis, but so far without finality, as individual plants are often found bearing two or three quite different looking leaves, even in areas where the great majority of specimens seem uniform. A *Pelargonium* of quite a distinct type, very similar in habit to the so-called "zonal Geranium" of horticulture, is the scarce *P. acraeum* which occurs sprawling over rocks in upland valleys, e.g. near Mbabane.

The genus *Geranium* is represented by a weak-stemmed plant straggling among other vegetation in moist spots in the highveld, with lobed leaves and notched white petals, *G. ornithopodum*. Our most noteworthy Monsonias are tufted mountain plants with delicate veined petals: the mauve-flowered *Monsonia transvaalensis*, chiefly in altitudes above 5,000 feet, and the white *M. attenuata*, usually a little lower; the third species, *M. biflora*, is a rather straggling weedy plant.

Oxalidaceae The Sorrel Family

The genus *Oxalis* (the "sorrels") has a large number of species in the Cape Province, and is also represented in South America and other parts of the southern hemisphere: but its numbers fall off rapidly as one goes north. In Swaziland we have one species, *O. obliquifolia*, which is very frequent in the highveld, its solitary bright pink flowers appearing throughout the summer. It has a hard bulb several inches below the surface and the leaves are "clover-like" with their three leaflets. Three other species occur, but are somewhat rare. Two exotic species are abundant garden weeds: one is a straggling bulbless plant with small yellow flowers producing copious fruits which shoot out the seeds by pressure like orange pips squeezed by finger and thumb; the other has a deep-seated bulb which sends out slender bulb-bearing runners in all directions and is almost impossible to eradicate: its flowers are pink, borne in a small cluster (local name "hellweed").

Linaceae The Flax Family

The flax family is represented in Swaziland by a single species, *Linum thunbergii*, a slender yellow-flowered shrublet found occasionally on moist slopes in the highveld and flowering in November and December.

Erythroxylaceae The Coca Family

We have three species of the large genus *Erythroxylum* (one species of which, the South American *E. coca*, is the source of the drug cocaine). They are large leafy shrubs or small trees not uncommonly occurring in bushy places, especially at intermediate altitudes. The flowers are small, stalked in small clusters, greenish in *E. browniaum* and white in *E. emarginatum:* both of these species have oval reddish fleshy fruits about $\frac{1}{2}$ inch long.

Zygophyllaceae

Swaziland has two indigenous species of *Balanites*, both bushveld trees. A character by which they can easily be recognised is that each leaf consists of two similar leaflets with a minute point between them. *B. maughamii*, sometimes called "torchwood", is a large deciduous tree, with grey-green oval leaflets up to about 2 inches long, sometimes with forked axillary spines and with clusters

of small star-like greenish flowers. The fruits are brownish, oval, up to 2 inches long and 1 inch in diameter, with a large stone enclosed in a pulpy coat: in water they are reported to be poisonous to snails, fishes and tadpoles, but not to mosquito larvae! The second species, *B. pedicellaris* occurs frequently along the western foot of the Lebombo range. It is a small tree, formidably thorny with its rigid tapering branches. The oval grey leaflets are usually less than an inch long, the greenish flowers are borne in dense clusters, and the fruits are spherical, $\frac{3}{4}$ inch in diameter, bright orange and said to be edible though astringent.

The troublesome prostrate weed *Tribulus terrestris* ("duiweltjie"), with yellow flowers and thorny fruits, also belongs to this family and is the cause of the serious "geeldikkop" disease in sheep.

Rutaceae The Rue Family

This family is rather sparingly represented in Swaziland by a few trees and shrubs, very distinct in general appearance, both from the large-fruited *Citrus* group and from the small-leaved "buchus" of the Cape. Like them, however, the leaves and other parts of the plants usually have numerous glands containing a clear aromatic oil (which may be pleasantly or unpleasantly scented) and this is often helpful in recognising them.

The most striking member of the family, and indeed one of the handsomest trees in the whole African flora, is the so-called Cape Chestnut, *Calodendron capense*. It is a good-sized tree with leathery gland-dotted simple leaves and trusses of flowers whose long wavy strap-shaped petals are white or pale mauve and dotted with purplish glands. The fruit is woody and nobbly and contains two large black seeds, this suggesting the otherwise inappropriate name "chestnut". It is said to occur in the mist-belt forests: it has been seen at the much lower altitude of 2,000 feet near the edge of the bushveld. *Clausena anisata* is a frequent shrub or small tree of forests and forest margins, ranging from the bushveld to altitudes about 5,000 feet. It has rather attractive soft light-green pinnate leaves and loose clusters of white flowers: the leaves, however, have a most unpleasant scent when crushed. Our three species of *Fagara* are thorny shrubs or small trees whose pinnate leaves, flowers and fruits have a strong citrus-like scent. *F. capensis* (or a closely similar species) occurs here and there on the Lebombos in bushy areas; *F. davyi* is occasional in upland areas and mist-belt forests. The common name "lemon-thorn" is applied to these trees.

The species of *Vepris* and *Teclea* are rather rare small trees of the bushveld with trifoliate Rhus-like leaves, which have the typical Rutaceous glands, and insignificant white or yellowish flowers.

Burseraceae The Myrrh Family

The genus *Commiphora* comprises many species, usually occurring in semi-desert conditions right through Africa: in North Africa some are the sources of

various balsams, myrrh, etc. They are mostly un-prepossessing shrubs or trees whose stiff branches taper to formidable spines. In Swaziland three species have been observed: two of them are occasional in the bushveld near Big Bend (*C. pyracanthoides* with small simple leaves) and Gollel (*C. africana* with small toothed trifoliate leaves): both bear small reddish fruits. The third species, *C. harveyi*, is a very different plant, being a good-sized thornless tree with soft pinnate leaves and a brown bark which can be pulled off in thin sheets: it occurs in the ravines of the Lebombos and in a few other localities.

Meliaceae The Seringa Family

The Meliaceae is a large tropical and subtropical family, almost entirely trees and shrubs, of which a few genera occur in Southern Africa, some of them well-known or important trees.

The Sneezewood, *Ptaeroxylon obliquum*, can become a big tree in forest conditions, but is more often found in Swaziland as a small tree or shrub on rocky hills or bushveld flats, though never common. The wood had at one time a great reputation for durability, being ant-proof and not subject to decay in the ground, and hence was much valued for fencing posts, etc. The leaves are pinnate, the leaflets being very unequal-sided, whence its specific name. *Trichilia emetica* is a large evergreen tree, with copious dark green pinnate leaves, and is one of the most shade-giving trees in the Southern African flora. It is fairly frequent and conspicuous in the Swaziland bushveld, being known as "Umkhuhlu" or "Natal Mahogany". The flowers are greenish and rather downy, borne in dense clusters laterally at the end of the branches, and are followed by round fruits containing a few large black seeds partly enclosed in a red aril. There are two or perhaps three species of *Ekebergia* occurring in Swaziland. One of them, *E. capensis*, is a tall handsome evergreen forest tree, of which good examples are to be seen on the Lebombo Mountains. The leaves are pinnate, a foot or more long, the leaflets being sharply pointed: the flowers are small, whitish, borne in graceful sprays among the leaves near the end of the branches. *E. pterophylla* is a smaller tree or large shrub with smaller pinnate dark green evergreen leaves, fairly often found on rocky hill tops and in boulder-forest in the Mbabane district. The fruits are black. Two species of *Turraea* occur in Swaziland, mainly in the Lebombo Mountains, but neither is frequent. They are shrubs or small trees and bear attractive scented white or cream flowers with a curiously lengthened and distinctive staminal tube.

A well-known introduced Meliaceous tree (Asiatic) is the "seringa", *Melia azedarach*, which is inclined to become established and spread from seeds in certain localities. Another is the Himalayan "tuna" or "toon-tree", *Cedrela tuna*, often planted as a quick growing ornamental specimen tree in gardens.

Malpighiaceae

Two genera of this small family occur in Swaziland, both with attractive growth and flowers. *Sphedamnocarpus* is represented by two closely similar species, both twining climbers rambling over the bushes, flowering in February and March, locally abundant in the bushveld and sometimes found in bushy places at higher altitudes. The flowers are clear yellow and are produced in profusion, and followed by curious reddish fruits, each of the three one-seeded parts having a wing rather like the wing of a maple or ash. *Acridocarpus natalensis* is a more robust scrambler whose elongated stems push up through other vegetation and are terminated by a conspicuous dense cluster of bright yellow flowers, larger than those of Sphedamnocarpus. It is not abundant but occurs here and there in the deep valleys of the Lebombo range.

Polygalaceae The Milkwort Family

The flowers of this family bear a superficial resemblance to those of the Papilionatae, and non-botanists are frequently misled as to identity. We have several species of the genus *Polygala*, most of them annuals or slightly woody perennials, occurring in the upland grassveld: the "wings" of the flower are mostly magenta inside and greenish outside, thus losing their conspicuousness when closed: the "keel" is usually tipped with a curious fringe. Two of our species, however, are attractive shrubs. One of them, *P. virgata*, often seen in gardens where it is inclined to sow itself among stones, is a slender shrub of about 6 feet high with long spikes of showy magenta flowers: it occurs wild on forest margins in the highveld, but is not frequent. The other, *P. galpinii*, is a charming shrub, with soft pointed light green leaves about 2 inches long and 1 inch wide, and spikes of pale mauve or pink, very "pea-like" flowers: it occurs in the dense shade of the forests in the kloofs of the highveld, between 4,500 and 5,500 feet altitude.

The genus *Muraltia* is mainly a constituent of the "Cape" macchia flora, but a few species have found their way along the eastern mountains of South Africa at higher altitudes, and in Swaziland we have two species, both very "Cape"-like densely small-leaved shrublets with small white or magenta flowers appearing between the leaves: *M. saxicola* has only been found in one locality, on Nduma mountain at over 5,000 feet, and is noteworthy because of the small hook at the tip of each leaf; *M. empetroides* occurs on the slopes of Emlembe at about 5,500 feet altitude. Both species also occur in the Natal-Basutoland Drakensberg. This kind of distribution follows the same pattern as that of several other typically "Cape" genera, some of which extend much further north along the mountains of the African continent—as if a northward migration, concurrent with evolutionary change, had taken place from the apparently "Antarctic" flora of the Cape coastal belt. [N.B. Some "tropical" genera show clear signs of migration in the opposite, southward, direction.]

Euphorbiaceae The Spurge Family

This is a very large family with representatives in almost all temperate and tropical parts of the world. There is a tremendous diversity of habit in the family, from insignificant annual weeds to large forest trees, shrubs or remarkable succulents: some have copious latex which has been used in the production of rubber (e.g. *Euphorbia triangularis* and *E. tirucalli*, as well as the cultivated *Hevea brasiliensis* from Tropical America); some yield valuable oils, (e.g. spp. of *Aleurites* giving tung-oil, *Ricinus communis* giving castor-oil, etc.); some are useful timber trees (e.g. *Androstachys johnstonii* and *Spirostachys africana*). Many are highly poisonous, containing alkaloids and strongly irritant substances. Some, however, are the source of foods, e.g. *Manihot* yielding cassava or tapioca. The flowers are always small, though in some cases the leaves may be brightly coloured as in the familiar garden Poinsettias, or the involucral glands in some species of *Euphorbia*, e.g. the well-known Christ's thorn, *E. splendens*. In the genus *Euphorbia* itself and in some of its close allies, the flowers are "reduced" to the simplest possible terms—solitary stamens or ovaries—but are grouped in a spherical and curious small inflorescence known as a cyathium, where they are surrounded by a few fleshy glands. In most genera, however, the flowers are more "normal", but are frequently unisexual, the sexes being sometimes on different plants, sometimes on the same.

The genus *Euphorbia* includes some of the most conspicuous plants in our flora. Firstly there are the succulent tree-Euphorbias of which we have four species, one (*E. ingens*) scattered throughout the lowveld and middleveld up to 2,500 feet altitude, the others more local, occurring on rocky outcrops, river cliffs and banks, also in the bushveld. *E. ingens* has the well-known candelabrum shape, the lower branches persisting and a dense crown of erect leafless stems on whose four or five sharply projecting ridges the flowers are borne, as well as pairs of short spines: it may reach 30 feet in height, often overtopping the surrounding trees. The young single-stemmed plants are "marbled" and often bear small leaves, features absent in the mature individuals. *E. cooperi* is in its way even more striking. Its lower branches fall off as the tree grows, leaving a single erect trunk with a spreading crown of branches which curve upwards, are conspicuously jointed and have rather longer pairs of spines than those of *E. ingens*. There are groups of these handsome trees on the rocks near Komati Bridge and in the hills round Grand Valley near Hlatikulu. *E. evansii* and *E. triangularis* also occur near Komati Bridge. Both are spiny succulent leafless much-branched trees up to 25 feet high: the latter has typically stout 3-angled stems, the former having slenderer 5-4- or 3-angled stems according to their position on the tree. *E. evansii* also occurs on rocky hills and outcrops in the Hlatikulu district, and *E. triangularis* is conspicuous on river cliffs in the Sibowe River and along its banks near Sitobela. All these succulent Euphorbias and others should be handled with great care as their latex is highly irritating

to the skin and causes severe pain in the eye, necessitating medical treatment.

Another succulent species, *E. tirucalli*, is a densely branching thornless shrub or small tree occurring in hot dry valleys such as Ingwavuma Poort: it has smooth green leafless branches the thickness of a pencil. Its latex is also poisonous, and it has to be treated with respect when used as a hedge plant. *E. grandicornis* is a most formidable shrubby type with thick jointed stems and pairs of fierce spines up to two inches long projecting in all directions. It is somewhat scarce in Swaziland, but can be seen near the Ingwavuma Causeway between Hluti and Maloma, and along the banks of the Mhlume Irrigation Canal. Another type of succulent Euphorbia, represented by *E. schinzii* and *E. clavigera* in the bushveld, has a stout subterranean stem from which rise clusters of angular spiny branches a few inches in height; the former can be seen near Sipofaneni and the latter, less abundantly, near Mpisi. The dense crowded cushions of *E. pulvinata*, sometimes several feet across, occur, though rarely, on stony slopes in the Hlatikulu district.

In addition to these striking succulent types, we have some very distinct-looking Euphorbias, e.g. *E. ericoides* on the hills near Mbabane, a slender twiggy shrublet with very numerous heath-like leaves: *E. gueinzii*, a low leafy plant with a tuberous root on the hills above the Komati River: the slender perennial *E. neopolycnemoides* with its white floral glands from Big Bend and the Lebombos, and *E. striata* from the Mbabane highveld; the softly shrubby *E. transvaalensis* from rocks in Mbuluzi Poort; and finally two or three small annuals as garden weeds.

Related to Euphorbia are two somewhat rare genera, each with a single species in Swaziland. *Monadenium lugardae*, a stem-succulent occurring sparingly in Mbuluzi Poort, and *Synadenium cupulare*, a bushveld shrub with large succulent glaucous leaves, said to be extremely poisonous.

Many of the Euphorbiaceae are rather undistinguished-looking shrubs or shrublets, without any special beauty of flower or leaf. Of these, *Phyllanthus reticulatus* is a frequent large densely branched shrub of the bushveld; *Acalypha glabrata* is another bushveld shrub or small tree, recognisable by its slender catkin-like male inflorescences; *Securinega virosa* is another, with pea-sized white berries; *Andrachne ovalis* is a shrub of forest margins at altitudes round 5,000 feet: *Cluytia pulchella* is also an upland forest plant with leaves of a striking salmon colour when withering—a feature shared by the small erect perennial *C. monticola*, abundant in the highveld; *C. affinis* is a tall greyish-green shrub of forest margins and moist places at upper altitudes. The genus *Phyllanthus*, mentioned above, also includes about eight other Swaziland species of slender small-leaved twiggy plants a foot or two high, bearing minute flowers along the underside of the branches, and occurring in grassveld over a wide range of altitudes: one species, perhaps introduced, becomes a copious weed around

upland swamps. *Cluytia virgata* is also a twiggy shrublet of the highveld, with a fire-resistant "rootstock" producing abundant erect stems after burning.

Among other Euphorbiaceae deserving special notice are three fine trees occurring at low altitudes in Swaziland. *Antidesma venosum* is locally plentiful and is a handsome spreading tree with slender elongated and sometimes branched hanging catkins, succeeded by strings of small fruits changing from red to black: curious nondescript branching galls are often produced on this tree. *Spirostachys africana* is a tall deciduous bushveld tree, somewhat locally plentiful, with rather stiff short male inflorescences, produced before the leaves, and 3-lobed dry fruits: its timber makes a valuable heavy furniture wood, though unpleasant to saw and handle when green: the fruits are often parasitised by a lively grub and are known as "jumping beans". *Androstachys johnsonii* is one of the few trees forming almost pure (i.e. not mixed) forest, and occurs in considerable quantity on the hot slopes and valleys above Mbuluzi Poort. The leaves are leathery, dark green above and densely coated with a white wool below: although they are produced abundantly, the tree cannot be considered a shade-tree. The trunk is straight and the wood is very hard, rot- and ant-proof, and is exploited for fencing poles and hut timbers. *Croton gratissimus* is a small tree of the bushveld, sometimes locally abundant, especially near streams. The leaves are densely coated on the lower surface with shining white peltate (i.e. umbrella-shaped) scales: they are pleasantly scented when crushed and are sometimes used by Africans as a perfume. The flowers are white and are borne in loose stalked clusters among the leaves.

Finally, there are many herbaceous Euphorbiaceae, mostly perennials, some of which are very abundant. The genus *Acalypha* is abundantly represented by several species in the highveld; they are leafy perennials, the stems a foot or more in height, most species with the sexes distinct, the small male flowers being borne in slender spikes in the axils of the leaves, the female in a dense cluster at the tip of the branch, their long wind-pollinated stigmas being red or yellowish: in some species both male and female flowers occur on the same plant. The species of *Tragia* are somewhat similar, but some of them are low climbers, and some have stinging hairs like a nettle, especially on the female inflorescences. *Ctenomeria capensis* is a strong herbaceous twiner with stinging hairs, occurring in forest undergrowth and bushy places, and our two species of *Dalechampia* are also strong climbers. *D. capensis* has 3-lobed leaves and dense clusters of flowers enclosed in a pair of lobed yellow or greenish bracts; it is a handsome plant occurring in bushy places in the lowveld: the fruits bear stinging hairs. We have several species of *Jatropha*. One, *J. variifolia*, is a shrubby plant with divided leaves, occurring sparingly in the valley forests of the Lebombo Mountains. Others are plants with underground rootstocks and erect annual shoots a foot or so high with large undivided leaves, a terminal yellowish inflorescence, either male or female, and rather large dry fruits which split into three pieces.

The introduced castor-oil plant, *Ricinus communis*, is frequently seen near kraals in the lowveld and tends to run wild.

Anacardiaceae The Sumach Family

This is one of the most important families in the vegetation of Swaziland. It consists entirely of woody plants, some being good sized trees, others large or small shrubs, the flowers being always small, not conspicuously coloured, though often produced in great numbers.

Perhaps the best known is *Sclerocarya birrea* (Swazi name "Umganu", but usually known to Europeans as "Marula"). This is very plentiful in the lowveld, and is conspicuous as being almost the only tree left standing when the ground is cleared for African cultivation. It is a handsome deciduous tree up to 40 feet in height with a stout stem and wide-spreading branches. The slender spikes of small whitish or pinkish flowers are produced in a tuft at the ends of the branches in the spring and are soon followed by the graceful pinnate leaves, whose 5–9 leaflets taper to narrow points. The sexes are distinct. The female trees bear a copious crop of yellowish fleshy fruits with a large stone and a soft rather stringy acid-sweetish flesh. The fruits are fermented and are made into an intoxicating drink by the Africans. *Harpephyllum caffrum*, the "Kafir Plum" is a handsome quick growing evergreen tree, reaching 50 feet in height, of which good specimens occur on the Lebombo range south of Stegi. The foliage is dense, the leaves being pinnate, the leaflets unequal-sided. The fruit is fleshy, oval, about an inch long, and can be made into a pleasant preserve. We have two species of *Lannea*, very different in habit, but both noteworthy for their handsome deciduous pinnate leaves and for the appearance of the flowers in spring before the leaves. *L. discolor* is a bushveld tree up to almost 25 feet high, usually much less, the tufts of spray-like inflorescences being conspicuous at the ends of the bare branches: the leaves are up to a foot long with about 7 to 11 leaflets, dark above and light and felted below, with rounded base and tip. *L. edulis* is locally abundant in the middleveld, especially in rocky places; it only reaches about a foot high, new branches arising from the underground rootstock. The leaves are large, pinnate and handsome, and the small reddish fruits, which begin to develop before the leaves, are completely hidden by them when ripe. The genus *Heeria* is represented by three species, all large shrubs or small trees, sometimes called "resin-bushes". Of these the most conspicuous and most abundant is *H. insignis* which is found in many parts of the bushveld and has spreading or drooping branches and leaves which are often curved and hang down, and have a dark upperside and a silvery lowerside: the small white flowers are borne in a large terminal panicle and are succeeded by shiny black berries. The other two species are also handsome shrubs with black berries, *H. reticulata* being also a lowveld plant and *H. paniculosa* belonging mainly to the middleveld and highveld. All three species can easily be recognised as Heerias

by the strong leaf-midrib and the numerous lateral veins which spread almost at right angles to the midrib. The wood is very resinous. *Protorhus longifolia* is a tree of the upland forests, with dense terminal clusters of whitish flowers, and leaves veined rather like those of a Heeria.

The genus *Rhus* is one of the most important in the flora of Southern Africa, including a large number of species found in almost every type of vegetation. In Swaziland we have over 30 species, varieties and forms, and in many cases, owing to great variability of leaf characters (on which present classification unfortunately largely depends) satisfactory identification is almost impossible. It is fairly easy to recognise a plant as a *Rhus*, owing to its shrubby habit and abundant somewhat resinous trifoliate leaves (though there are pitfalls if flowers or fruit are not present), and some of the species are comparatively well defined, both in character and in habitat. Among these may be mentioned *R. spinescens* which is an abundant constituent of bushy places in the lowveld: it has rather tangled growth and many of its lateral branches gradually taper and end as sharp rigid spines; *R. legati* which is a small tree of graceful habit, has soft long-pointed leaflets up to 3 or 4 inches long and feathery plumes of minute flowers, and is typically found in and along the margin of forests in the highveld; *R. ernestii* which is a stunted shrub usually about a foot high in rock crevices in the highveld; *R. discolor* which is a low tufted highveld shrub, about 2 feet high, with erect unbranched shoots; *R. gerrardii* which is a graceful shrub or small tree growing along river banks in highveld and middleveld. If an example is wanted of what botanists call a "variable species", *R. dentata* will provide it: it occurs in many different habitats and displays a multitude of forms with an almost infinite variety of shape of leaflets—though all of them are more or less sharply toothed—and the confusion is increased by the suspicion that hybridisation occurs with other species. There are one or two other bushveld species and a considerable number occur in the highveld and middleveld, mostly as scattered good-sized densely leafy shrubs in open situations or on rocky slopes. It would serve little purpose to attempt to distinguish them in these "Notes"—their study is definitely a matter for the specialist. It may be mentioned that throughout the genus Rhus dioecism occurs—i.e. male and female flowers are produced on distinct plants: this in itself adds to the difficulties of classification: in the field the relationship of male and female plants with one another has often to be deduced from their general physiognomy, habitat, etc.

Aquifoliaceae The Holly Family

This family, to which the well-known English Holly belongs, is represented in Southern Africa by a single species, *Ilex mitis*, the "Water Tree" which occurs near mountain streams from the Cape Peninsula northwards. In Swaziland it is found quite often in the highveld areas, near streams but not usually in the forests. It is a tall evergreen tree reaching 50 feet in height, with smooth leathery

leaves up to 3 inches long and 1 inch wide, sharply pointed but without prickles, and distinctly paler on the lower than the upper surface. The small white flowers are borne copiously in small groups along the branches, and the male and female flowers are borne on separate trees, the females being followed by bright red berries the size of a small pea.

Celastraceae

This is another large family, almost entirely consisting of large shrubs and small trees. There are a considerable number of species in Swaziland, practically all of them shrubs of open country, occasionally in the fringing bush of rivers and rarely as a component of forest undergrowth. Some of them are among the commonest shrubs of the bushveld and middleveld. They are usually evergreen, the leaves being simple, glabrous and of moderate size. The flowers are small, white or greenish and borne in dense or open clusters. Many species have very rigid branches which often taper into thorns. Very few have any economic importance, though one species, *Catha edulis*, the "bushman's tea", is much valued as a stimulating beverage in northern Africa, though it does not seem to be used in Swaziland: it is one of the most attractive members of the family, growing on river banks in the middleveld, and bearing quantities of clear white flowers. The largest genus is *Maytenus* (formerly known as *Gymnosporia*) with several species of somewhat unattractive shrubs, though in some the fruits are brightly coloured. *M. mossambicensis*, with very long sharp spines, is frequent in highveld forest margins, but most of the other species are scattered shrubs of dry open country, especially at lower altitudes. The species of *Pterocelastrus*, occur as dense shrubs on rocky slopes in the highveld. Some species of *Cassine* are trees: *C. eucleaeformis* becomes a tall tree in the forests of high altitudes, and *C. tetragona* is also an occasional tree in similar situations. The fruits of *Cassine* are slightly fleshy, whereas those of the other genera are dry and split open when ripe to release the seeds, which often have an aril.

Icacinaceae The White-Pear Family

This relatively small family is represented in Swaziland by four widely distinct species, belonging to three different genera. The most abundant is *Cassinopsis ilicifolia*, which is a glabrous evergreen shrub frequently found in the margins of upland forests, with opposite leaves with more or less prickly edges, sharp spines, not always developed, small greenish or white flowers and orange fruits. *Apodytes dimidiata*, the "White Pear", is a dense-leaved forest tree wide-spread in Southern Africa, extending from the valleys in the Lebombos to 5,500 feet on Emlembe: it has panicles of small white flowers and the fruits have a curious fleshy lateral bulge. *Pyrenacantha grandiflora* is a straggling large-leaved climber found locally in Mbuluzi Poort and perhaps elsewhere.

Sapindaceae The Soap-Berry Family

A few Swaziland plants belong to this large tropical and subtropical family. One of them, *Cardiospermum halicacabum*, is a graceful herbaceous tendril-climber, with pale green divided leaves, white flowers and inflated fruits, fairly frequent in bushy places in the lowveld. The others are small trees with rather insignificant flowers in elongated spikes or panicles, *Pappea capensis* var. *radlkoferi* having simple leaves; in the other plants the leaves are divided. The Pappea is a somewhat rare tree of the thorny bushveld: it has small round fruits which are red and edible. *Allophylus decipiens* is a small tree of rocky outcrops, from lowveld to highveld; it rather resembles a *Rhus*, the leaves being trifoliate, but the small flowers are yellow. Another species, *A. melanocarpus*, is a large or medium-sized tree with dark green trifoliate leaves in the highveld forests, especially near Hlatikulu. *Atalaya alata* is a very attractive small tree with copious light green pinnate leaves, the leaflets being in pairs, with no terminal leaflet, very unequal-sided and slightly toothed: it is rare in Swaziland, but there are a few specimens at the entrance to Ingwavuma Poort. *Hippobromus pauciflorus* is a frequent, graceful and attractive erect shrub or small tree along streams in the lowveld and middleveld, the leaves being somewhat like those of the *Atalaya*.

Melianthaceae

Two very distinct genera belonging to this small family occur in Swaziland, with two species of each. *Bersama lucens* and *B. transvaalensis* are both highveld trees, the former reaching a considerable size: they are both scarce but occur here and there in the Mbabane district: a good specimen of the former can be seen on a rocky outcrop near the road between Forbes Reef and the top of the Komati Pass. The leaves are pinnate with rather few lateral leaflets and no terminal one; the white or greenish flowers are borne in long spikes at the tips of the branches and are followed by woody rough-surfaced fruits. The other genus, *Greyia* (often placed in a distinct family), includes some of the most strikingly handsome plants in the South African flora. Swaziland has two of the three species, *G. sutherlandii* and *G. radlkoferi*, both of them characteristically growing on rock outcrops along the edges of forest-filled ravines in the highveld. Both of them are large wide-branching shrubs and have dense spikes of brilliant scarlet flowers appearing in winter and early spring often before the leaves, in much the same way as the Erythrinas; in *G. sutherlandii* the leaves are glabrous, and in *G. radlkoferi* they are grey-hairy and the flowers are a little larger.

Balsaminaceae The Balsam Family

Our only species *Impatiens duthieae*, is a soft herbaceous plant with erect semi-transparent stems a foot or two high, thin leaves tapering to long leaf-stalks, and very slender peduncles in their axils bearing single delicate orchid-like spurred flowers which are white or of numerous soft shades of pink or mauve.

It is abundant in the dense shade of the forest floor, or rooted in the moss on moist rock surfaces, in damp places in the forests of the highveld ravines. Another species, *I. sylvicola*, may be expected to occur in Swaziland, but has not so far been observed.

Rhamnaceae The Buckthorn Family

This is a large and widespread family, mainly of shrubs and trees, sometimes climbing, of which we have a few members in Swaziland. The most abundant is *Zizyphus mucronata*, which is, at a distance, an attractive small deciduous tree with shining pale green leaves in spring, found throughout the bushveld and extending into the middleveld. The leaf-blade has a midrib and two other strong veins springing from its base; where the leaf-stalk joins the stem there are usually two prickles, one pointing straight forward, the other hooked backwards (an arrangement also found in some Acacias), and these make it advisable to avoid entanglement. The flowers are borne in axillary clusters, small and greenish and are followed by slightly fleshy red fruits. *Rhamnus prinoides* is a good-sized evergreen shrub occurring frequently in the valleys and on the margins of forests in the highveld. In the late summer it produces copious small round red berries turning black which last well into the winter. *Phyllogeiton zeyheri* (formerly known as *Rhamnus zeyheri*), the "Red Ivory" is a deciduous bushveld shrub or small tree, sometimes nearly 30 feet high, with stalked greenish flowers and small oval red fruits. The wood is very hard and bright pink in colour, and is sometimes made into knobkerries which are a prerogative of the chiefs in some African tribes. *Phyllogeiton discolor* is a somewhat similar looking shrub. A species of *Scutia* is a forest margin plant in the Hlatikulu highveld. *Helinus integrifolius* is a shrubby plant, the only one of our Rhamnaceae which has a semi-climbing habit of growth, having short single tendrils which clasp any support available. It has simple light green leaves and white or greenish flowers produced at midsummer, and is typically a hill-top plant which can be seen on the Lebombos and the hills near Hlatikulu. Finally we have a single species of *Phylica*, a genus which is typically a member of the "Cape" flora, there being about 150 species in the Cape Province. This plant, *P. paniculata*, is a large shrub with copious small hard leaves, green above and thickly grey-felted beneath, and minute grey flowers at the ends of the branches; it is very rare in Swaziland and has only been recorded on one or two rocky hills in the Mbabane district at 4,000–5,000 feet altitude.

Heteropyxidaceae

This family only comprises two species, both of which occur in Swaziland. *Heteropyxis natalensis* is fairly frequent in bushveld areas: it is usually a small graceful tree, but it sometimes grows to a considerable height near rivers. The bark is very pale-coloured, the leaves are narrow, long-pointed, rather willow-

like, and the branches often are more or less pendulous: the flowers are small, greenish, borne in dense clusters near the ends of the branches, and followed by small dry fruits. The other species, *H. canescens*, has much larger, strongly veined leaves up to 6 inches long by 2 inches wide, paler in colour beneath than above: it is found in some of the valleys near Mbabane, near streams and in forest on boulder-strewn slopes.

Vitaceae The Vine Family

Climbing plants belonging to the three genera *Cissus*, *Cyphostemma* and *Rhoicissus* are frequent and conspicuous in all parts of Swaziland, typically inhabiting bushy places at any altitude wherever there is anything to climb on. Several species of climbers occur in the various habitats: in addition there are three species which are non-climbers. Taking the latter first, *Rhoicissus napaeus* was first recorded from near Manzini and has since been found in several other Swaziland middleveld and lowveld localities: whether it is confined to this Territory cannot be said at present: it has erect unbranched stems rising from the ground, bearing a few undivided toothed leaves up to 5 inches long and wide, and with small lateral clusters of greenish flowers which develop into round fleshy fruits $\frac{1}{2}$ inch in diameter. *Cissus diversilobatus* is also an erect or arching plant, occasional in the Mankaiana and Hlatikulu districts: the leaves near the base of the stem are undivided, those near the apex are deeply 3-lobed, while in between there are leaves of intermediate form: the fruits are oval and over an inch long. *Cyphostemma woodii* is a bushy branching plant, soft in texture, with leaves deeply divided into 3 or 5 parts and with stems covered with long bristles: the flowers are very numerous and are borne in much branched rather flat-topped inflorescences raised above the leaves: it is frequent under trees in the bushveld and less luxuriant plants occur sparingly at higher altitudes.

Turning now to the climbing species, there is one with large undivided leaves, the undersides covered with a russet down as are the young stems and branching tendrils: this is the well-known "Cape Vine", *Rhoicissus tomentosa*, a very strong climber or "monkey rope", reaching to the tops of the trees: the female plant bears clusters of dark-coloured "grapes" which make an excellent preserve: it is not very common in Swaziland, but can be seen in the Hlatikulu forests and on the Lebombos. Other climbers have 3-lobed or 5-lobed leaves, those of *R. tridentata* being relatively broad, while those of *R. digitata* are comparatively small and narrow. Other less common species of Rhoicissus and Cyphostemma occur, but need not be specially mentioned.

Finally there are two very distinct succulent climbers, both very common in the bushveld where they scramble over trees with the aid of their stout tendrils. One is *Cissus rotundifolius* in which the stems are not succulent, but the leaves are fleshy, undivided, glabrous, somewhat toothed, and from 2 to 3 inches in diameter: the spherical fleshy fruits are borne in clusters like grapes and are up

to $\frac{3}{4}$ inch in diameter. The other type of climbing succulent Cissus is represented by *C. succulentus:* this has fleshy jointed 4-angled glaucous-green stems 1–2 inches in diameter, but scarcely any leaves except near the apex of luxuriant specimens: stout tendrils arise at the nodes and enable the plant to climb to the top of tall trees, from the branches of which the Cissus shoots may hang down to a length of several yards: the greenish-yellow flowers are borne in branching lateral inflorescences, followed by fruits up to about $\frac{1}{2}$ inch in diameter. These succulent species of *Cissus* are among the most striking and conspicuous plants of the bushveld, especially in the strip of very hot country along the western side of the Lebombo range and near the lower part of the Usutu River.

Tiliaceae The Linden Family

The genus *Grewia* includes a large number of species of which several occur in Swaziland. One of them, *G. occidentalis*, is widely distributed in Southern Africa and is a large straggling shrub frequently found as a component of "bushy places" and on forest margins in the highveld and middleveld, sometimes lower. It is easily recognised by its attractive wide-open mauve flowers about an inch in diameter with narrow petals and a large number of stamens. A white-flowered variety occurs, differing slightly in its leaves, etc., but this has not been specifically distinguished. The other species of *Grewia* all have yellow petals and are typically large shrubs of the bushveld: they seem to be specially frequent along the low hills and on the plains near the western side of the Lebombo Mountains. Some of them are strikingly handsome plants when in good flower, especially *G. hexamita*, whose bright yellow flowers are $1\frac{1}{2}$ inches in diameter and are borne copiously on stout branching inflorescences among the small oval leaves: the fruits are larger than in the other species, their one or two rounded segments being $\frac{3}{4}$ inch in diameter and remaining a long time on the plant. *G. bicolor* is another attractive species, but with smaller flowers and with smaller oval leaves which are noticeably white-felted on the lower side: it is frequent near Big Bend and Gollel. *G. flava* has narrower leaves which are grey on both surfaces, though a little lighter underneath. A very distinct species, also occurring in the Big Bend–Gollel area, especially in the poorts, is *G. villosa* which has rounded leaves up to 5 inches in diameter, though usually much less, and rather small yellow flowers in dense clusters along the stem. Other shrubby species are frequently met with, and are sometimes rather difficult to distinguish from those mentioned. Another shrubby member of the Tiliaceae is *Sparrmania ricinocarpa*, which has a very different habitat, occurring on moist slopes and along forest margins in the highveld. Its leaves are prettily lobed and notched: the white petals spread wide and expose the numerous yellow stamens, which are sensitive and move slowly when touched: the bristly fruits suggest a small castor-oil fruit, hence the species name.

Other Tiliaceae occurring in Swaziland are herbaceous and some of them are inclined to be weeds. Of these, the species of *Corchorus* and *Triumfetta annua* are rather soft weedy plants, used by Africans for flavouring food, and sometimes on sale in the markets (Swazi name "Igusha"). *T. welwitschii* is a showy yellow-flowered perennial, frequent in the highveld and middleveld and flowering profusely after fires. Its fruits and those of other more shrubby species are spherical and covered with bristles which in some cases are stiff and hooked at the tip, serving for animal distribution. *T. rhomboidea* has strong fibres in its bark, somewhat similar to jute (which is a Corchorus).

Malvaceae The Mallow Family

This family contains the well-known genus *Hibiscus*, of which Swaziland has several species. They are nearly all middleveld to bushveld plants. The twiggy *H. meyeri*, seen in the poorts of the Lebombo range, has relatively small flowers with white reflexed petals. Other species are straggling shrubs with large delicate flowers, yellow or cream-coloured often with a dark centre, e.g. *H. vitifolius*, *H. dongolensis* and *H. calyphyllus*. Some are herbaceous perennials, e.g. the handsome *H. saxatilis* with erect stems a foot or so in height, and large bright yellow (or sometimes white) flowers with a dark centre. *H. barbosae* is a rare plant having red flowers. *H. cannabinus* is a common roadside weed in the bushveld, tall and little branched with rather dingy whitish flowers only open in the forenoon: it is often cultivated for its fibres. *H. trionum* is a very widely spread and variable annual weed with whitish or yellowish flowers with a very dark centre. Our two species of *Cienfuegosia*, *C. gerrardii* and *C. hildebrandtii*, are bushveld plants, rather infrequent, which suggest Hibiscus in appearance, but differ in technical characters. The Pavonias of which we have two species, are soft shrubby plants; *Pavonia patens* with apricot yellow flowers being occasional in the bushveld, the tall *P. columella* being an abundant plant of sheltered spots in the highveld, among rocks or trees, with white or pale pink flowers and very unpleasantly scented leaves. Our species of *Abutilon* are small shrubs with long-stalked grey-green lobed leaves, yellow or apricot coloured flowers and curious "pepper box" fruits. These and species of *Sida* are locally abundant in the bushveld, some of them being common roadside weeds. *Abutilon guineense* is a conspicuous and attractive plant of the roadsides near Gollel, with deep yellow flowers an inch or more in diameter. *Sida rhombifolia* is an almost world-wide weed with small yellow flowers, forming low thickets in several places.

An interesting Malvaceous plant which occurs here and there in the bushveld is a wild cotton, *Gossypium herbaceum* subsp. *africanum:* this belongs to the same genus as the cultivated cotton, and has a similar dry fruit which bursts and releases the seeds which are covered with a dirty white clinging floss.

The Malvaceae can be easily recognised by the numerous stamens which are

joined together above their base, forming a tube out of which the stigmas project. (But see *Turraea*.)

Sterculiaceae

Two species of *Sterculia* (the genus to which the Australian "Flame Tree" belongs) occur in Swaziland. One of them, *S. rogersii*, is fairly frequent on the low stony hills in the Big Bend area and occasional elsewhere in the bushveld. It is a small soft-wooded tree, deciduous, the $\frac{1}{2}$-inch-wide flowers appearing in small clusters along the bare branches, their colour being greenish with a reddish centre: the leaves are grey, entire, heart-shaped or slightly lobed, grey-green and closely felted: the fruit consists of five (or less) radiating pods each about 3 inches long and $1\frac{1}{2}$ inches wide, covered with a grey felt, splitting lengthwise to release the large oval seeds, which are black with an orange aril at one end: the inside of the pod bears numerous stinging hairs. The other species, *S. murex*, the "Lowveld Chestnut", is found occasionally in areas of heavier rainfall at the foot of the mountains, e.g. in the Lomati River valley. It is a large deciduous tree with handsome leaves divided into seven or eight lance-shaped leaflets, each about 6–8 inches long and $1\frac{1}{2}$–2 inches wide: the flowers are about $\frac{3}{4}$ inch in diameter, borne in panicles on the leafless branches, and are followed by the remarkable fruits, each consisting of five (or less) large pods which are 6 inches long and 3 inches wide and covered with blunt tapering spines of variable length up to an inch long: the pods split lengthwise and open wide to release the large oval seeds. The genus *Dombeya* has four species in Swaziland, all very attractive plants. The best known is perhaps *D. rotundifolia*, the "Wild Pear": this is a deciduous tree loaded with white "fruit-blossom" flowers in spring, sometimes as early as July before the rains: it is scattered through the bushveld and middleveld and is highly conspicuous when in flower among the other resting or deciduous trees: the flowers quickly fade before the leaves appear. *D. pulchra* is a soft-wooded shrub about 6 feet high with large soft, lobed leaves up to 7 inches across, paler below, in whose axils are borne the branching sprays of papery white flowers often with a bright red centre: it is locally abundant on the Lebombo Mountains and in moist sheltered places throughout the highveld. A third species, *D. cymosa*, is somewhat rare, but occurs in the valley forests in the Lebombo range: it is a small tree with thin leaves and loose panicles of pretty pink or white flowers borne at the end of lateral short shoots. One species of *Melhania*, *M. rehmannii*, is a small shrub with small grey leaves and yellow flowers, occurring in the Big Bend area. The other species are perennial with erect stems a foot or two high and conspicuous yellow flowers facing upwards: they also occur in the bushveld and on the Lebombos.

The large genus *Hermannia* is represented in Swaziland by several species. Some of them are small woody subshrubs or perennials with trailing stems whose yellow flowers are inconspicuous owing to their position facing the

ground. This applies to the highveld species *H. montana* and *H. rogersii*, and also to the swamp-margin *H. transvaalensis*. The pendulous position of the flowers is usual throughout the genus, as is the curious twist of the petals whose edges overlap in one direction only. Other species which may be mentioned are the scrambling much branched forest undergrowth *H. grandifolia*, found e.g. in the Komati Pass; the erect red-flowered *H. erecta* in the same area; and the charming and plentiful perennial *H. cristata* of the highveld whose short erect stems sprout freely from a woody base and bear relatively large solitary hanging flowers of a fine orange-red colour.

Finally, the family includes a wide-spread tropical and subtropical weed, *Waltheria indica*, with roughly hairy leaves and clusters of small yellow flowers, found in disturbed bushveld localities.

Ochnaceae

Three or perhaps four species of *Ochna* occur in Swaziland. They are shrubs or small trees with handsome dark green finely toothed leaves, bright yellow petals which fall easily leaving a calyx which becomes thickened, turns bright red and bears 1–5 small oval fruitlets which are green when young turning black on ripening. *O. natalitia* is the most abundant species, sometimes becoming a small tree or large shrub, but more frequent as small twiggy growths emerging between rocks in the highveld and much damaged by fires and browsing: it appears to range from 500 feet altitude in Usutu Poort to 5,000 feet on the hills round Mbabane: but it is possible that there is some confusion as to its identity and that of closely similar species.

Hypericaceae The St. John's-Wort Family

One of our species of *Hypericum*, *H. revolutum*, is a shrub reaching six or eight feet high in moist sheltered spots in the highveld, but usually less, and is a very attractive plant with its copious small leaves and large delicate bright yellow wide-open flowers 2 inches in diameter. The other Swaziland species are herbaceous plants with erect leafy stems and bright yellow or orange flowers: *H. lalandii* is abundant in upland swamps and moist slopes in the highveld, and *H. natalense* is a stronger branching plant, rare in similar situations, while *H. aethiopicum* var. *sonderi* is a plant of grassy slopes in highveld and middleveld.

Guttiferae The Mangosteen Family

Our only representatives of this Family are two species of Garcinia. *G. livingstonei* has only been seen in the Usutu Poort: the fruits are said to be pleasantly edible. The other species, *G. gerrardii*, is a tall tree with handsome foliage, a member of the high forests in the ravines of Emlembe and adjoining mountains.

Canellaceae

Our only member of this small Family is *Warburgia ugandensis*, a tropical African tree so far only noticed in Bulunga Poort.

Violaceae The Violet Family

According to Burtt Davy, *Hybanthus thorncroftii* was collected by Bolus below Mbabane at 3,500 feet altitude, but I have not been able to confirm this record.

Flacourtiaceae The Kei-Apple Family

This family includes several Swaziland trees and large shrubs, only two of which are at all plentiful. One is *Gerrardina foliosa*, a densely leafy evergreen small tree with small white flowers in stalked clusters among the leaves: the leaves are lanceolate, finely toothed, and the fruits are the size of a pea and bright red: it is commonly found on rocky outcrops and forest margins in the mountains above 4,500 feet altitude. A plant often grown in the Cape and elsewhere as a formidable hedge is the "Kei Apple", *Dovyalis caffra*, which occurs here and there in the bushveld: it has rigid branches, enormous straight thorns and an acid yellow fruit which makes a good preserve. *Trimeria rotundifolia* is a graceful tree with broadly oval toothed leaves up to 3 inches long and broad, with veins spreading from the base and a sharply narrowed apex, the minute flowers being borne spaced out on slender branching peduncles 2–4 inches long: it is frequent along the margins of highveld forests from 3,500 to 5,000 feet altitude. *Rawsonia lucida* is a forest tree occurring in some quantity in Kings Forest near Havelock and reaching 45 feet in height: the fruits are rather larger than golf-balls, yellow, woody, splitting lengthwise when ripe. *Kiggelaria africana*, the "Wild Peach", a tall tree which extends to the Cape Peninsula, is occasionally found in Swaziland forests, e.g. near Hlatikulu. Two species of *Scolopia* are found in the highveld forests, one, *S. zeyheri*, also occurring in the Lebombos; but perhaps the most attractive Flacourtiaceous tree is *Aphloia myrtifolia* which is a small tree or tall shrub with graceful flexuous branches, narrow faintly toothed leaves and small white or cream stalked flowers with numerous prominent stamens, borne along the length of the branches: it is found along the margins of the high forests in the ravines of Emlembe up to 5,000 feet altitude. *Oncoba spinosa* is a thorny scrambling shrub which has been recorded in the Manzini district, Mbuluzi Poort and elsewhere, but is not common: the flowers are conspicuous, white, 2 inches in diameter, and the hard-shelled fruits are used for snuff-boxes and other purposes.

Turneraceae

This is a small family of which only one species has been recorded in Swaziland. This is *Piriqueta capensis*, a shrublet with toothed leaves and yellow flowers, fairly common in stony places in the Lebombo Mountains.

Passifloraceae The Passion Flower Family

Two genera occur in Swaziland. *Adenia digitata* is a low tendril-climber with much-divided leaves, the leaflets often lobed, and pale yellow or cream-coloured hanging bell-shaped flowers, followed by orange or red fleshy fruits: the tendrils are unbranched and are actually the tips of the inflorescences: it occurs here and there from the bushveld upwards to about 3,500 feet. *A. gummifera* is a rampant climber, with lobed but undivided leaves, occasional in valleys in the Lebombos, frequent in the Piggs Peak bushveld and reaching 3,500 feet near Mbabane: it has small greenish flowers and inflorescence tendrils. *A. hastata* occurs along the Ingwavuma River, both in the poort and near the causeway, and can be distinguished by its arrowhead-shaped leaves and rather larger cream-coloured flowers. Some species of *Adenia* are among the most poisonous plants in existence, the vegetative parts causing stock-poisoning, and the rather attractive-looking fruits having been responsible for the death of children. The other genus, *Tryphostemma*, is less conspicuous. *T. sagittatum* is a low tendril-climber frequent among bushes on the Lebombos, with pretty 3-lobed leaves and white flowers. *T. sandersonii* is a rather erect non-climber. A third species, probably new, with short prostrate stems, simple glaucous leaves and small white flowers, is often seen in the hills of the Mbabane and Mankaiana districts.

Achariaceae

Our only species, *Ceratosicyos laevis*, is a soft twining plant, with curious slender elongated fruits: it occurs very sparingly in some of the highveld forests.

Begoniaceae The Begonia Family

Two species of the well-known and mainly New World genus *Begonia* occur in the mountains of the Piggs Peak and Mbabane districts. Both are fragile herbaceous plants with the typical oblique leaves. Male and female flowers are borne on different plants. *B. sutherlandii* is chiefly found in dense shade in the montane forests, especially near streams: it has bright orange-coloured flowers. *B. caffra* comes more into the open, occurring mostly on rocky slopes sheltered from the midday and afternoon sun: its flowers are of a good pink colour: it is possible that our plant should be distinguished from typical *B. caffra*.

Cactaceae The Cactus Family

We have one indigenous species of this mainly American family (of which the various Prickly Pears, Jointed Cactus and many other well-known succulents are members). This is *Rhipsalis baccifera*, very widely distributed through Africa, but only seen here in one rocky area in the Lebombos. It is a leafless plant with green stems the thickness of a pencil (easily confused with *Sarcostemma*, but

without the milky latex), with a few cactaceous bristles and white fleshy berries like those of a mistletoe. The general appearance of the plant is very un-cactus-like.

Thymelaeaceae The Daphne Family

This large family is mainly African, but has outliers in many other parts of the world. In Swaziland we have some of the tropical genera and also some that are more characteristic of the Cape Province: the latter, which are mainly small-leaved shrublets of the "Cape macchia", are regarded by some plant-geographers as being derived from a southward stream of migration from the tropical part of the African continent—in fact, the opposite direction to that which has been taken, it is believed, by such "Cape" families as the Proteaceae. On the other hand, since there are Australian Thymelaeaceae, it is possible to argue that the Cape genera such as Gnidia have migrated northwards from an Antarctic source. The family, in fact, provides a good example of the problems of migration and evolution in the flora of South Africa.

The supposedly "tropical" genera are represented in Swaziland by a few broad-leaved woody plants, none of which is common. *Peddiea africana* usually occurs in upland forests, especially near streams: it is a shrub or small tree whose flowers are borne in umbels of about 5–8, the tube being about ½ inch long, often reddish, the lobes being green, spreading or reflexed. *Englerodaphne pilosa* is a soft-leaved downy shrub with umbels of small hairy yellow flowers: it has only been seen here once, viz. on a hill near Mbabane. *Dais cotinifolia* is a shrub which has frequently been grown in gardens on account of its attractive "posy-like" clusters of mauve flowers: it occurs sparingly in the Usutu Forests area, but is often badly disfigured by insect attacks.

Of the small-leaved genera *Lasiosiphon* is the most frequent and conspicuous, including several species of small shrubs, usually sprouting from fire-resistant woody bases: they bear terminal clusters of bright yellow flowers with rather long hairy tubes and narrow spreading segments. They are mostly plants of the grassland in the middleveld and highveld areas, though *L. caffer* is a frequent bushveld plant of stony places, flowering through much of the year. Some are plants whose leaves are thickly covered with silky silvery hairs, this accentuating their general attractiveness, e.g. *L. splendens* with larger flowers and *L. ornatus* with conspicuously silvery leaves and smaller flowers, both highveld species. *L. kraussianus* is an abundant species in sheltered spots in highveld and middleveld, and is noticeable because of the long erect peduncle which carries the bunch of yellow flowers high above the foliage: it occurs in two varieties, one densely hairy, the other almost glabrous. Closely related, but inconspicuous, are the slender highveld shrublets *Arthrosolen microcephalus*, *Gnidia fastigiata*, *G. gymnostachys* and *G. woodii*. A more conspicuous shrub is *Passerina* (*?*) *filiformis*, which is abundant along upland streams, reaching 6 feet or more in

height, with "weeping" lateral branches, small heath-like leaves and copious small dull-coloured flowers; it is our only member of a genus which has many species in the Cape Province.

The Thymelaeaceae are usually easy to recognise by the fact that the calyx is the most prominent part of the flower, in size and colour: the petals being either absent or perhaps represented by small membranous or fleshy scales in the throat of the calyx tube: and also by the possession of very tough fibres in the cortex.

Lythraceae The Loose-strife Family

This family is relatively unimportant in Swaziland. One species, *Galpinia transvaalica*, is occasional on the sides of the steep valleys in the Lebombo Mountains: it is a small tree with oval leathery leaves and dense terminal clusters of white flowers produced in the early months of the year. We also have two species of *Nesaea:* one, *N. sagittaefolia*, an erect shrub which could easily be mistaken for an Erica with its small dense heath-like leaves and magenta flowers: the other, *N. floribunda*, is an undistinguished looking slightly woody plant, often prostrate, with small clusters of magenta flowers: both are plants of upland peaty swamps.

Rhizophoraceae The Mangrove Family

This family includes some of the mangroves which are such typical features of tropical muddy seashores. A Swaziland representative of it, however, is a small tree with leathery leaves and white scented flowers with fringed petals, borne close to the stems among and behind the leaves. It is probably an undescribed species of *Cassipourea*, and has only been seen on rocky outcrops in the neighbourhood of Mhlosheni. Another species, *C. gerrardii*, is also recorded.

Combretaceae The Lead-Wood Family

If one were asked to name the most important genus, after *Acacia*, of lowveld trees in Swaziland, the answer would be *Combretum*. Species of this genus are plentiful, especially in those parts of the bushveld in which Acacias are scarce. Most of them are medium-sized trees with simple deciduous leaves and spikes or panicles of small greenish or yellowish flowers followed by the characteristic 4-winged fruit which often hangs on the tree long after the leaves have fallen. *C. zeyheri* is a tree with very irregular growth, having the largest fruits of all our species, these being $2\frac{1}{2}$–3 inches long, of an attractive brown colour. *C. hereroense* is more of a shrub, found mainly near streambeds in the bushveld, having relatively small leaves and fruits only an inch long: *C. erythrophyllum* can become a large tree: it is occasionally found near streams and its leaves are noteworthy for their rich autumnal colouring. One species, *C. kraussii*, is a tree of the high-

veld forests, up to 5,000 feet altitude: it has pinkish flowers and the leaves have a whitish appearance during the flowering period. The leaves of the abundant bushveld tree *C. gueinzii* are silvery when young, becoming russet beneath when mature. Another abundant bushveld tree is *C. suluense*, which has leaves sometimes up to six inches long and four inches wide, bearing small peltate scales on both surfaces. One species of *Combretum*, *C. microphyllum*, is a vigorous woody climber, scrambling up through bushes and over trees and producing a great quantity of bright scarlet flowers. The species name is a misnomer as the leaves reach a good size when mature. This magnificent plant can be seen in Mbuluzi Poort and along the Komati River near Border Gate. The other genus occurring in Swaziland is *Terminalia* of which *T. sericea* is a tall tree with silvery-grey leaves locally abundant in sandy soils in the bushveld, its light colour contrasting pleasantly with that of the majority of its associates. The fruits in this genus have only two wings as compared with the four wings in *Combretum*. Another species, definitely scarce, is *T. phanerophlebia* which can be seen near Komati Bridge and in the Lebombo range.

Myrtaceae The Myrtle Family

Two of our most abundant trees belong to this family. *Syzygium cordatum*, the "Water-Berry" is a tall quick-growing evergreen tree frequent by streams and wherever there is constant soil moisture in the highveld and middleveld, and even occasional in the lowveld. It has light green broadly oval leaves borne in pairs on the branches, terminal corymbs of white flowers with conspicuous stamens followed by purple fleshy berries which are edible. *S. gerrardii* is one of the most frequent trees of the highveld forests, and splendid specimens can be seen in ravines near Mbabane. The leaves are about 2½ inches long, shiny dark green and tapering to long points, evergreen, and the flowers are white, Eucalyptus-like, borne in terminal corymbs and followed by dry fruits. Another species, *S. guineense*, occurs in the bushveld and is mentioned by Burtt Davy as "a fine umbrageous tree forming groves in Swaziland", but this I have not observed. *Eugenia natalitia* is an evergreen shrub or a small tree found occasionally in the upland forests near Mbabane and on the Lebombos: its small flowers are also Eucalyptus-like, but are borne laterally on the slender branches.

Melastomaceae The Lasiandra Family

Two species of *Dissotis* are abundant and conspicuous in the swamps of the middleveld and highveld. They are soft-wooded shrubs, three or four feet high growing socially. The flowers of *D. princeps* are more than 2 inches in diameter and of a fine purple colour: those of *D. canescens* being rather smaller and bright pink. Two other species of Dissotis are annuals, and *Antherotoma naudinii* is also an annual, only two or three inches high: all these annuals occur in swampy ground and have pink or mauve flowers.

Onagraceae The Evening Primrose Family

Ludwigia stolonifera is a floating plant found in some of the lowveld streams: it produces curious soft white erect aerating roots at the nodes of the stem as well as fibrous roots: the delicate yellow flowers are borne just above the water. *L. octovalvis* is an erect waterside plant, occasionally found near lowveld streams, and also has very fugacious yellow flowers. We have probably four species of *Epilobium*, all slender erect little-branched perennial herbs found in upland swamps, but their nomenclature is somewhat uncertain at present. They have 4-petalled flowers, cream, pink or magenta, and the slender dry fruits split lengthwise, releasing the seeds which have a silky appendage and are distributed by the wind. Two or three species of *Oenothera* ("evening primrose") have escaped from gardens and are becoming naturalised, usually near rivers.

Halorrhagidaceae

Laurembergia repens is a slender creeping plant, found occasionally in upland swampy ground: it roots along the stem, has very small leaves and minute axillary flowers. *Gunnera perpensa* is a very different plant, also found in upland swamps: it has large rounded toothed leaves up to 9 inches in diameter on long stalks rising from a thick rhizome: the inflorescences also arise from the rhizome and are 1–2 feet high with large numbers of slender branches bearing the minute flowers. The rhizome itself always contains green colonies of algae.

Araliaceae The Ivy Family

Our only genus, *Cussonia*, is represented by one forest tree and five trees of the bushveld and open hillsides. *C. umbellifera* is frequent as a large evergreen tree in the forested ravines of the highveld: it has handsome long-stalked leaves, with about 5 separate leaflets each 4–5 inches long and 1–1½ inches wide: the greenish flowers are borne singly on much-branched panicles, making a very different picture from the inflorescences in the other species. *C. natalensis* is an attractive wide-branching tree of the bushveld, with light green long-stalked leaves incompletely divided into about five toothed lobes: the small flowers are borne closely on narrow stalks several inches long, which are tufted at the ends of the branches while still leafless. The other four species are the distinctive and decorative "cabbage-trees" or "umbrella-trees", with large much-divided fan-like leaves and inflorescences in which the individual flowers are more or less closely in contact with one another. *C. chartacea* is a striking tree of the open highveld especially in rocky and bushy places, occasionally reaching 50 feet in height, and well characterised by the club-like ends of the primary branches of the umbellate inflorescence. *C. spicata* and *C. kraussii* are somewhat smaller, and occur in shady stream-beds in the bushveld. The remaining species, *C. paniculata*, also a highveld tree, appears to be rare in Swaziland.

Umbelliferae The Carrot Family

Our *Centella* species are trailing herbaceous plants rooting at the nodes, in appearance somewhat resembling violets: the flowers are very small and inconspicuous, being borne at the nodes close to the ground. *C. asiatica* is very common in highveld and middleveld, especially where the ground is disturbed, but often passes unnoticed; *C. coriacea* is rather more robust, but is also frequent. *Hydrocotyle americana* is a delicate trailing plant with light green lobed leaves which is occasional on moist stream banks and swamps. The genus *Sanicula* has a single species, *S. elata* (the "wood sanicle") which is almost identical with a common European herbaceous plant of forest undergrowth, and occurs here and there in similar places in Swaziland, e.g. in the forests at Hlatikulu and Emlembe: it has Ranunculus-like long-stalked basal leaves and a branching inflorescence of clusters of small green flowers, the fruits bearing hooked bristles helping with animal distribution. *Alepidea* is an unmistakeable genus with several species in Swaziland, some very abundant. Characteristic are the star-like inflorescences, the radiating petal-like bracts being sharp pointed and clear white above, greenish beneath, and surrounding the few very small flowers. *A. amatymbica* is a common but very attractive perennial highveld plant, flowering from January to April in the long grass, usually about 2 feet high. *A. gracilis* is similar, but rather shorter and is a plant of rocky places in the highveld, also flowering in the same season. Both (as well as other species) have leaves with sharp teeth ending in fine brown bristles. *A. longifolia* is very like them, but has longer and narrower basal leaves. *A. setifera* is frequent in some upland swamps, e.g. round Forbes Reef: it has a rosette of broad basal leaves, and the stem, 1–1½ feet high, is clothed throughout with small bristly leaves and ends in a more compact group of white inflorescences. Two or three other less conspicuous species also occur.

Unlike the great majority of the Umbelliferae, *Heteromorpha trifoliata* is a small tree reaching about 20 feet in height, usually smaller, found in sheltered places among granite boulders in the highveld: the leaves have three leaflets and the inflorescences are typical umbels of small greenish flowers; several varieties or forms of this plant occur and have received separate names. Another species, *H. involucrata*, is a scarcely woody plant with branches several feet long rising from the ground, and parsnip-like umbels of yellowish flowers: the general appearance is very like *Peucedanum capense* which also occurs in Swaziland and which can hardly be distinguished if fruits are not present. Another species of *Peucedanum*, *P. magalismontanum*, is a tall perennial with finely divided carrot-like leaves at the base, branching inflorescences of small yellow flowers and relatively large oval flat fruits ½ inch long by ¼ inch wide: it is found mainly in rock crevices in the highveld. Also found in similar situations are some smaller Umbelliferous plants, among which *Annesorrhiza flagellifolia* has also yellowish flowers and carrot-like leaves, usually produced at a different time

from the inflorescence. The Pimpinellas have minute white flowers produced in summer, the leaves of *Pimpinella transvaalensis* being finely divided, whereas in *P. caffra* the lower ones consist of a simple blade, the others being more and more divided as one ascends the stem. *Bupleurum mundtii* is a yellow-flowered plant with long strap-shaped undivided leaves. All the above plants definitely belong to the highveld.

There remains to mention the weedy *Apium leptophyllum*, perhaps introduced, and *Sium repandum*, a robust plant with rather *Osmunda*-like leaves found on the banks of some of the rivers in the highveld and middleveld.

Cornaceae The Dogwood Family

Southern Africa has only one member of this family which is mainly distributed in the northern hemisphere. This plant, the endemic *Curtisia dentata*, occurs sparingly in the mountains on the western side of Swaziland, especially in the fringes of the forests: it is also found in the Transvaal and extends as far as the Cape Peninsula. It is a handsome evergreen tree with strongly toothed simple leaves, when mature dark green above and strongly veined and downy below. The flowers are small and greyish in much branched terminal panicles, followed by white slightly fleshy ribbed fruits. The common name is "Assegai Wood".

Ericaceae The Heather Family

The genus *Erica* is of great interest from the point of view of geographical distribution. The vast majority of its species—several hundred in number—as well as other closely related genera, occur in the Cape Province coastal belt, especially in the winter rainfall area of the south-west. They have accordingly been regarded by many botanists as one of the groups of plants which had an Antarctic origin. From the Cape Province some of them are supposed to have migrated right up the high levels of Africa into the Mediterranean region and northern Europe, undergoing evolutionary changes all the way. The Swaziland mountains lie on this route of migration, and we find eight or nine species of *Erica* in this Territory. They occur only from 3,500 feet altitude upwards, being completely absent from bushveld and middleveld. One of them, *E. cerinthoides* (the species known in the Cape as "Red Erica"), actually extends from the Cape Peninsula to Abyssinia in a number of forms and varieties: in Swaziland we have a very striking variety with clusters of white tubular flowers up to 1½ inches long, found in rock crevices in the mountains of the Mbabane district, from 4,500 feet altitude upwards: a red variety also occurs near Havelock. Another species, tentatively named *E. holtii*, with clusters of small pink flowers with hairy calyces, is almost confined to Swaziland, apparently only occurring in the granite country bordering the upper part of the Black Mbuluzi River, though it has been recorded in one locality in the Northern Transvaal. *E. drakensbergensis*

is an abundant species in moist places bordering on montane forests: it is a tall shrub, almost a small tree, and bears myriads of small white bell-shaped flowers at the beginning of spring and the end of summer. *E. woodii* is another frequent species, especially among rocks in mist-belt areas: it bears great numbers of small dull-coloured flowers, but is usually of small stature and easily overlooked. *E. caffrorum* and *E. leucopelta* are also small-flowered shrubs, not found so far below 5,500 feet altitude. *E. oatesii* is a handsome plant bearing masses of large (for an Erica) bright pink flowers: it is distributed along the Drakensberg, but so far is only known here in one or two spots in the Mbabane district and appears to be in danger of extermination.

We have one other Ericaceous plant in Swaziland, *Vaccinium exul*, which seems to be very rare, having only been seen on the margins of forests in Emlembe at 5,500 feet altitude. Whereas all the Ericas have the typically "ericoid" type of leaf, small and narrow with margins reflexed, *V. exul* has a broad leaf, 2 inches long and $\frac{1}{2}$ inch wide, finely toothed along the margins: the flowers are white, very Erica-like in appearance, but borne in small branching inflorescences along the leafy stems. In complete contrast to the genus *Erica*, *Vaccinium* is largely a northern hemisphere genus, but comes into South America along the Andes, and is also represented in the East African mountains, and in Madagascar. These two genera (as well as other Ericaceae) present a most difficult and intriguing problem for plant-geographers!

Myrsinaceae

This is mainly a tropical and subtropical family of woody plants, of which a few members extend into Southern Africa. Our commonest one is *Maesa lanceolata* which is a quick growing small tree or large shrub with large simple toothed leaves and much-branched panicles of small white flowers in their axils: it is abundant in the Mbabane district, especially in rocky situations. *Rapanea melanophloeos*, the "Cape Beech", is a widely distributed tree (it is frequent in the Cape Peninsula), with a straight trunk, shining leathery leaves and small flowers borne closely along the stem below the leaves: in Swaziland it is frequent among boulders in the highveld and extends here and there into the middleveld. Our other member of the family is *Myrsine africana*, a low shrub with numerous small roundish leaves and minute axillary flowers followed by small reddish fruits: it extends from the Cape Peninsula, where it is very abundant, right through Africa and across Asia: in Swaziland it is found mainly in the hills of the Mbabane district, near the edges of montane forests or among sheltering boulders.

Primulaceae The Primrose Family

The Primrose family is very scantily represented in Swaziland by two herbaceous waterside plants of the highveld, both scarce. These are *Lysimachia*

ruhmeriana, an erect plant with long inflorescences of white flowers, found in the catchment of the Black Mbuluzi River; and a relation of the "Pimpernel", *Anagallis huttonii*, a trailing plant with rounded opposite leaves and small white flowers borne singly in their axils, found in swamps near Mbabane.

Plumbaginaceae The Plumbago Family

Plumbago zeylanica, a relation of the well-known blue Plumbago of gardens, is our only species: it is a straggling shrub, the clustered flowers having white petals and sticky calyces, occasionally found in the bushveld, e.g. near Tulwane, but not common.

Sapotaceae The Milkwood Family

This is a large and important family, mainly trees, of the tropics of the old and new worlds, many of them of economic importance for fruit, gutta-percha, chewing gum, etc. Out best known member of the family is *Bequaertiodendron magalismontanum*, the "Stemfruit Tree", which is a conspicuous tree of the highveld, especially among groups of boulders: the leaves are leathery, dark green above and russet below: the flowers are borne on the old branches and are followed by an oval, brownish-red fruit which is pleasantly edible, either raw or as jam. Another tree with edible fruit is *Mimusops zeyheri* which is a handsome evergreen bushveld tree of which specimens can be seen in the Komati Pass and in the poorts of the Lebombo Mountains. The fruits are produced in April and May: they are oval, yellow, rather pointed, and hang down from the tree's spreading branches, sometimes in profusion. *Sideroxylon inerme* is the well-known "Milkwood" of the Cape coastal sands, extending inland and found right through the eastern side of Southern and Central Africa. In Swaziland it is a handsome tree of the bushveld, especially at the foot of the Lebombos, having dark green leathery evergreen leaves and round black fleshy fruits on the old branches: it exudes a not very copious white latex when broken. *Manilkara mochisia*, a small tree of the bushveld (e.g. Tambuti Ranch) also has a pleasant tasting oval fruit about $\frac{1}{2}$ inch long. Other bushveld Sapotaceae include *M. concolor*, and a handsome tree of the Lebombo ravines, *Mimusops obovata*.

Ebenaceae The Ebony Family

A family of trees and shrubs, mainly tropical in both old and new worlds, but especially in the Indo-Malay Region. Southern Africa, however, has many species of the two genera *Diospyros* and *Euclea* which often play an important part in the vegetation: most of them are good-sized evergreen shrubs, occasionally reaching tree stature, and in Swaziland they may be found in any of the three main vegetational divisions of the Territory. The leaves are always simple, usually only an inch or two in length. In *Diospyros* the flowers are usually small,

white- or cream-coloured, contracted at the mouth with the corolla lobes reflexed: the fruit is sometimes enclosed in the enlarged calyx, as in *D. whyteana* which is an abundant highveld shrub in bushy places and among boulders: its leaves are glossy above and the fruits in their inflated calyces are massed copiously along the branches. *D. lycioides ssp. guerkei* is another frequent highveld and middleveld shrub with dull leaves and solitary flowers hanging on long stalks. *D. dichrophylla* is abundant on the Lebombos, forming dense thickets near Stegi: it has a relatively large spherical downy fruit an inch in diameter. *D. lycioides* (which occurs in several varieties) is locally common in the bushveld, and also sometimes forms thickets. *D. galpinii* is a very different looking plant, found in the Mankaiana and Mbabane districts, having erect simple stems arising from a woody rootstock and bearing a few relatively large leaves, often 4 inches long and 2 inches wide, and a few solitary flowers in the axils near the ground. *D. nummularioides* is a small-leaved shrub, somewhat resembling *Myrsine africana*, found occasionally in forests and bushy places on the Lebombos. The other genus, *Euclea*, also has several species in Swaziland. They are all evergreen shrubs with entire leaves: the flowers are small, wide open, white- or cream-coloured, borne in small lateral sprays, and are unisexual, the male and female flowers being borne on separate plants. Some of the species are difficult to distinguish from one another and this will not be attempted here. *E. divinorum* is a shrub or small tree, locally abundant in the bushveld, characterised by its rather narrow wavy-edged leaves up to 3 inches long and about $\frac{1}{2}$ inch wide: the sprays of cream-coloured flowers are produced in profusion in early summer, and later the female trees bear great numbers of small spherical fruits the size of peas. *E. natalensis*, also in the bushveld, has larger leathery leaves and both male and female flowers are crowded on the stems. *E. crispa* is somewhat similar to *E. divinorum*, but has smaller and less wavy leaves, and the fruits are borne on longer stalks: it occurs at rather higher altitudes. *E. macrophylla* has much larger leaves and is a highveld shrub or sometimes a forest-tree.

Oleaceae The Olive Family

Of the three genera of Oleaceae represented in Swaziland *Jasminum* (to which the cultivated Jasmines belong) is the most abundant and easily recognised, including some of our most attractive plants. *J. multipartitum* is a straggling shrub forming dense masses of interlacing branches bearing opposite simple leaves and large numbers of conspicuous sweet-scented flowers with a slender tube and many (up to 10) narrow segments: these are pure white above and tinted beneath and on the tube: the fruits are pea-sized black berries: it flowers from July to Christmas and is plentiful in parts of the bushveld and on the Lebombo range. *J. fluminense* is also a scrambling shrub, locally plentiful in the bushveld, the leaves consisting of 3 leaflets, often downy grey, and the sweet-scented flowers having a long tube and only 5 narrow white segments:

the flowers are also produced from July to Christmas and are followed by black berries. *J. breviflorum*, a species with small simple leaves and rather sparse white flowers occurs sparingly in Ingwavuma Poort. The fourth species, *J. streptopus*, is the only highveld species, occurring as a straggling plant of forest margins along the hills from Hlatikulu to Mbabane, but not abundant. The genus *Olea*, to which the edible European Olive belongs, is represented by two species, which are small trees of the bushveld. *O. africana* has narrow lance-shaped opposite leaves, branching lateral inflorescences of small white flowers followed by pea-like berries. *O. capensis* is seldom met with, e.g. along the Usutu River, and has broader leathery leaves. The third genus, *Schrebera*, differs from the others in having somewhat unsymmetrical flowers and leaves with from 3 to 5 leaflets. They are very attractive but rather uncommon shrubs, the sweet-scented flowers being white or pale pink with a few darker markings, and the fruits being dry capsules which split in half lengthwise. *S. alata* is occasional in forest margins near Sitobela and along the Usutu River: *S. argyrotricha* is a stouter species met with in Grand Valley, and also in a much reduced form as a stunted shrub, along exposed rocky ridges over 5,000 feet altitude in the Ngwenya Mountains.

All the Oleaceae are characterised by having opposite leaves and almost always only 2 stamens in the flower.

Salvadoraceae

Azima tetracantha is a branching shrub forming thickets in the bushveld, especially along the western foothills of the Lebombo range. It is easily recognised by the presence, as the species name indicates, of four sharp straight spines at each node of slender branches. (The spines may be less than four, and on some branches are often absent.) The flowers are minute, cream-coloured, borne on slender lateral inflorescences.

Loganiaceae The Strychnine Family

This family includes some abundant and characteristic trees and shrubs. *Anthocleista grandiflora* is a tall tree found here and there along the Lomati River and in the neighbouring forests on the mountains dividing the north of Swaziland from the Transvaal: it is characterised by its enormous simple leaves, borne in a crown at the end of the stem, and reaching 4 feet long and 9 inches wide: the flowers are borne in an erect terminal forking corymb; after flowering the stem branches and the leaves gradually become smaller as the tree grows taller. The species of *Strychnos*, bearing fruits the size of a cricket ball known as "kafir oranges", are conspicuous in the bushveld, especially when leafless in the winter: five species have been recognised in Swaziland, of which *S. innocua* ssp. *dysophylla* and the very thorny *S. spinosa* may be mentioned. The flowers are insignificant, greenish and borne in small clusters or on short peduncles along

the branches. The genus *Nuxia* includes *N. congesta*, a rather handsome small evergreen tree with leathery dark green leaves and dense corymbs of small white flowers, frequent in the forests on the granite hills round Mbabane and also occuring on the Lebombos; *N. floribunda* is a profusely flowering tree found in the Hlatikulu forests, but more plentiful in the coastal forests of the Republic; *N. oppositifolia* is a small erect narrow-leaved shrub found along the rocky bushveld course of the Komati and Mbuluzi Rivers (e.g. at Komati Bridge). Finally, the genus *Buddleia* (including species sometimes placed in *Chilianthus*) is represented by one very common shrub, *B. salviifolia*, found in the highveld along the margins of montane forests and also adapting itself to roadside life: it has trusses of lavender-coloured (occasionally white) flowers with a very strong and characteristic scent which persists long after drying: the long narrow leaves are rough and dark green above, grey-downy below. Other species of Buddleia are much less common, viz. the attractive *B. auriculata* with broader leaves, occasional near Mbabane and in the Ngwenya Mountain valleys; *B. dysophylla* and *B. pulchella*, tall scrambling climbers, in the Hlatikulu forests; and *B. saligna*, an erect shrub with narrow leaves, green above, grey-white below, and dense terminal clusters of minute white flowers, also found in the Hlatikulu hills.

Gentianaceae The Gentian Family

The Swaziland members of this wide-spread family are all herbaceous plants, with flowers white, pink or yellow (never the well-known blue of the northern gentians). Most of them are plants of moist ground in upland areas.

The three local species of *Chironia* are showy plants with bright pink flowers, bearing erect flowering stems from a perennial rootstock; *C. palustris* is a plant of moist ground with rather few flowers, slightly larger than the other species; *C. krebsii* is also an upland swamp plant in the Mbabane district with numerous strap-shaped basal leaves and a comparatively bare stem, the flowers being clustered at the top; *C. purpurascens*, which is often found on relatively dry slopes, is the showiest species, the inflorescence spreading wide and bearing numerous flowers with pointed pink petals. We have several species of *Sebaea*, mostly annuals with erect, little-branched stems a few inches to a foot or more in height, neatly arranged pairs of leaves and bright yellow flowers. They are all plants of upland swamps or relatively moist slopes. *S. sedoides* with dense terminal clusters of flowers on an unbranched stem, and *S. rehmannii* with a stem branching towards the top and loosely arranged flowers are the most conspicuous species. *S. filiformis*, on the other hand, has a hair-like stem 6 or 8 inches high with one or two solitary flowers (swamps near Forbes Reef), and *S. erosa* is a minute species only 2 or 3 inches high, with very slender branched stems found occasionally on wet mossy rocks in the Mbabane hills. *Sebaea grandis* is also an upland swamp plant, having larger flowers than the other species; there are white and yellow colour-varieties. Another similar plant, a

foot or more in height with clustered white flowers, also in swampy ground, is *Swertia welwitschii*.

Finally we have the remarkable *Nymphoides indica* occasionally found in pools and in slow-moving water, rooting in mud at the bottom and producing slender stems adapted in length to the depth of the water, each ending in a floating water-lily-like round leaf a few inches in diameter, and a cluster of short-stalked flowers with bright-yellow fringed petals, opening one or two at a time.

Apocynaceae The Periwinkle Family

This is a very large family, mostly tropical, including many plants for various reasons of great interest, of which we have several in Swaziland, some trees, some shrubs, some succulents, nearly all of them growing at low altitudes. The flowers can almost always be recognised by the petals overlapping one another regularly in the bud and often after unfolding, the right-hand edge of each lying over the left-hand edge of the next (or *vice versa*). Many members of the family contain highly poisonous substances.

The genus *Adenium* is represented by two species, plants with succulent leaves and showy flowers. One is the well-known *A. obesum* var. *multiflorum*, which is thick-stemmed, leafless at the time of flowering (winter and early spring), having white petals with a bright pink margin, and fruits resembling a pair of horns up to about 9 inches long (perhaps the reason for its common name "Impala Lily"): it is found in the bushveld, especially near Big Bend, but is not common. The other species, *A. swazicum*, is almost confined to the Swaziland bushveld: it is a lower growing plant, with leaves and flowers simultaneously in late summer, the petals being uniformly bright pink. Another succulent plant belonging to this family is *Pachypodium saundersii*, in which the stems are somewhat fleshy and bear tufts of formidable spines: the base of the plant often expands to an enormous tuber from which the leafy stems arise and may spread to two or three feet: the flowers are white or pale pink, rather frilled, with a tinted tube: it is locally abundant on sheltered rocks in the Lebombo range. The genus *Acokanthera* is represented by two species with attractive small flowers and showy fruits. *A. oppositifolia* is an erect shrub, found occasionally along bushveld riverbanks: it has tufts of white flowers in the leaf axils and the fruits are oval and plum-like and have sometimes caused fatalities. *A. schimperi* var. *rotundata* is a dense, robust large shrub with leathery leaves and showy round red fruits which are also known to be poisonous; it occurs on rocky outcrops in central and southern Swaziland, but is not common. We have two species of *Carissa*, one of which (*C. tetramera*) is uncommon; the other, *C. bispinosa*, is plentiful in bushy places and under trees from the bushveld to about 4,500 feet altitude. It is usually a medium-sized shrub, but can become a small tree: it is easily recognised by its forked spines borne in pairs at the nodes of the stem:

the flowers are white, in small terminal clusters, and the fruits are small red berries which are not poisonous. (The well-known Natal *Carissa*, known as the "amatungula" and often grown as a hedge and for its edible fruit, does not seem to occur in Swaziland.) Two fine riverside trees belonging to this family occur sparingly in Swaziland. One is *Rauwolfia caffra* with glossy green leaves and corymbs of small white flowers, recorded in the Usutu and Mzimpofu valleys. The other is *Tabernaemontana elegans*, of which fine trees exist in Mbuluzi Poort, with leathery leaves, sweet-scented white flowers and extraordinary large bilobed fruits with a closely warted surface. *Strophanthus speciosus* is a somewhat rare plant which has been found along the margins of the Hlatikulu forests: it has clusters of yellow flowers with red centres, the petals of which are prolonged into slender tails up to 2 inches long. *Wrightia natalensis* is a tall tree only recorded so far in the Chilobe Forest, Lebombo Mountains. A tree recently discovered in Swaziland and previously only known in the Eastern Cape Province, is *Gonioma kamassi*, the Kamassi Wood, which occurs on a mountain near Mbabane.

There remains to mention the small South American *Catharanthus roseus* a very drought-resistant plant often grown in dry gardens and tending to escape as a weed: it exists in two colour varieties, white and a rather crude pink.

Asclepiadaceae The Asclepias Family

A very large tropical and subtropical family, well represented in the Swaziland flora. In the majority of cases the flower is of great complexity, largely owing to the presence of one, two or three coronas arising from the mouth of the corolla and united with the highly specialised stamens and the style into a central column: and the classification of the genera and species is largely based on the special features of this column. The pollen in most genera forms solid waxy masses united by special clasping organs which cling to the foot or proboscis of visiting insects in something the same way as in the Orchids. Many of the succulent Stapelieae have flowers with an odour repulsive to our nostrils, but attractive to carrion flies, the meaty colour of the corolla adding to the attraction.

A large proportion of the Asclepiadaceae are climbing plants, twining and without tendrils, with opposite leaves or leafless, and milky latex. The flowers are usually small but of complex structure. In the genus *Ceropegia* the flowers are of a variety of fantastic forms, unlike anything else in the plant kingdom, to which justice cannot be done by descriptions: the five petal tips which are attached to one another in the genus *Brachystelma* and *Riocreuxia*, are in many Ceropegias developed into extraordinary forms, caps or top-knots, the whole corolla being dilated into lantern-like shapes. We have about fifteen species of this fascinating genus in Swaziland, mostly in the lowveld, some of them very local and difficult to discern in the tangles of shrubs in which they often grow. Some of the other climbers are of rampant growth, ascending to tree-tops in the

valley forests. *Stomatostemma monteiroae* is one of these, with woody cigar-shaped fruits. *Secamone alpinii* is fairly frequent in forests at middle altitudes. An abundant leafless twiner in the bushveld is *Sarcostemma viminale*, with grey glaucous stems and clusters of white or cream flowers: it is often seen growing in dense masses over trees and shrubs, the pencil-thick stems hanging down in festoons.

Many of the Asclepiadaceae have underground storage tubers, producing flowering shoots annually. A common highveld example is *Raphionacme hirsuta* which has a large flattened milky tuber, the low stems forking repeatedly and bearing bright magenta flowers in early summer. Another species, *R. elata*, is a frequent but rather inconspicuous plant with clusters of greenish flowers. The closely related genera *Asclepias*, *Schizoglossum*, *Gomphocarpus*, *Pachycarpus* and *Xysmalobium* include a considerable number of species, mainly in the highveld and middleveld. They differ from one another chiefly in technical details of the corona, and it is often a difficult matter to decide in which genus a plant should be placed. We have at least twenty species of *Asclepias*, mostly rather slender plants a foot or so in height with white, yellow or greyish flowers: the majority of them are highveld plants. One species, *A. fruticosa*, is an abundant roadside weed in the middleveld; it is a small twiggy shrub with hanging clusters of white flowers followed by curious inflated fruits which burst to release the seeds, each of which bears a delicate silky plume of hairs, assisting in wind distribution. (This type of seed is found in nearly all the Asclepiadaceae.) A somewhat similar plant, but more robust and with larger fruits, is *A. physocarpa*, which is frequent especially in the Lebombos. Two slender highveld species, *A. aurea* with yellow, *A. dissona* with white flowers, are locally common and conspicuous, but many species are easily overlooked owing to their scattered occurrence, spreading growth and sombre-coloured flowers. The species of *Xysmalobium* and *Pachycarpus*, on the other hand, are mostly conspicuous robust plants, two or three feet or more high, with broad leaves and clusters of larger flowers. The curious features of the corona are well seen in these flowers. One species, *P. campanulatus*, differs markedly from the rest and is one of the most charming plants with its clusters of a few nodding broadly bell-shaped flowers of subtle shades of green, ivory and brown, often with a speckling of brown spots. *X. acerateoides* is a frequent highveld species with a few sprawling stems, broad leaves and terminal clusters of white flowers. *X. undulatum* is sometimes found as a roadside weed, and may reach five feet in height, with broad wavy leaves and lateral clusters of cream or greenish flowers. *P. scaber* and *P. decorus* have relatively large cream-coloured flowers, and are definitely handsome plants.

Finally, we have a number of the succulents belonging to the Stapelieae group. These are normally leafless plants with angled fleshy stems, colourless latex and flowers of remarkable form, colour and markings. The most conspicuous is *Stapelia gigantea* which sometimes occurs in spreading patches of

several square yards, in a few bushveld areas. The flowers are enormous, specimens having been seen measuring 15 inches across: they are a pale buff colour marked transversely with numerous narrow dull red lines. Other Stapelieae are much less conspicuous and are often passed over by people with untrained eyes. *Caralluma ubomboensis* is a small species with relatively slender stems and tiny dark brown flowers, found occasionally in the Lebombo range; *C. keithii* and *C. gerstneri* are two other rare species of this very wide-spread genus. We have one species of *Duvalia*, *D. polita*, and one or perhaps two little-known species of *Stultitia*. The genus *Huernia* is represented by the remarkable *H. zebrina* with its polished thick ring around the centre of the flower and its conspicuous stripes, by *H. hystrix* whose brown corolla is beset with curious tapering prominences, and by *H. stapelioides*. All these Stapelieae are lowveld or middleveld plants and are very local in their distribution, so that it is largely a matter of luck (training or instinct) whether they are seen or not.

Several other genera of Asclepiadaceae occur, but it is unnecessary to mention them here; they are rather for the specialist with access to a Herbarium: but every one is of great interest in its own way and repays attention.

Convolvulaceae The Convolvulus Family

This family which includes some well-known climbing garden plants, is represented in Swaziland by several species of *Ipomoea* and *Convolvulus*. The most frequent is the showy trailing *I. crassipes*, a very variable plant with large magenta flowers. *I. obscura* is a common slender bushveld twiner with smaller cream or white flowers. *I. bolusiana* is a tufted or shortly trailing plant with very narrow leaves and large pink or magenta flowers. Less familiar are the trailing *Evolvulus alsinoides* with its small bright blue flowers, the shrubby *Seddera suffruticosa* with small white flowers, and the wide-trailing *Turbina oblongata* of the highveld with its huge oval leaves and large magenta flowers.

The Family also includes two Swaziland species of the large genus Cuscuta, leafless twining or straggling total parasites, known as Dodders. *C. campestris* has very slender thread-like stems: *C. cassytoides*, one of the most remarkable species, has stems up to 4 mm. thick. Both cling to their host plants by special suckers, as in the genus Cassytha, which belongs to an entirely different Family, the Lauraceae.

Boraginaceae The Forget-me-not Family

This is a family comprising a few woody species and several herbaceous ones, of which some are troublesome weeds. The most noteworthy is perhaps *Ehretia rigida* which is one of the most abundant shrubs or small trees of the bushveld, having irregular interlacing growth, very stiff and sometimes spiny stems, clusters of small mauve, purple or white flowers followed by pea-sized red berries. Another species, *E. amoena*, is less abundant, and is a very decorative

small tree with more open growth, larger leaves, loose inflorescences of white flowers followed by conspicuous clusters of bright red berries.

Among the herbaceous members of the family *Trichodesma physaloides* is a charming plant with perennial rootstock and erect stem about 18 inches high ending in a branching inflorescence of hanging bluish-white flowers: it occurs, somewhat rarely, in the middleveld, where it has probably been largely eradicated by cultivation, and in a few localities in the bushveld. The weedy Boraginaceae include the rather attractive white-flowered *Heliotropium nelsonii* of roadsides at Big Bend, etc., and the rather unnoticeable *Cynoglossum micranthum* and *C. enerve* with small troublesome burr fruits which cling tightly to clothing.

Verbenaceae The Verbena Family

Here are included some familiar Swaziland plants. One of the most attractive perennials of the highveld, extending down into the middleveld, is *Clerodendron triphyllum*, with erect shoots a foot or more high, leaves usually in whorls of three, and flowers of an intense blue on branching stalks in their axils. Another species, *C. myricoides*, is a robust shrub with toothed leaves, and flowers whose lower lip is blue, the other petals being greenish: this is somewhat scarce, but occurs usually near water, in the Mankaiana district and in the bed of the Great Usutu River. A third species, *C. glabrum*, is a good-sized evergreen shrub, mainly in the middleveld, with stalked narrow-tipped opposite leaves and dense terminal clusters of small white flowers with protruding stamens. *Lippia asperifolia* is a very abundant small much-branched shrub, mainly in the highveld, reaching a few feet in height, having rough leaves with a very strong almost unpleasant smell when bruised, and small clusters of minute white flowers on short stalks in their axils: it belongs to the same genus as the well-known "lemon-scented Verbena" of gardens, *L. citriodora*. We have three species of *Lantana*, all small woody plants growing in bushy places in most parts of the Territory, the clustered flowers being magenta, mauve or white and the fruits (in *L. rugosa*, the commonest species) being small, violet-coloured berries. An introduced species, *L. camara*, sometimes used as a hedge plant, tends to escape and become a noxious weed. *Holmskioldia tettensis* is a very attractive large shrub, found here and there in the poorts and at the base of the Lebombos: the flower is noteworthy for its expanded pink calyx, reaching an inch in diameter, and persisting after the fall of the violet-coloured corolla. Two species of *Vitex* occur, both rather handsome large shrubs. *V. harveyana* is found near streams and in riverside scrub in the bushveld: its leaves have 3 leaflets and the flowers, borne on axillary stalks, are white or mauve. *V. wilmsii* is a hillside plant, shrubby or occasionally a small tree reaching 25 feet high, locally frequent near Hlatikulu, its leaves having 3–5 leaflets and its mauve flowers being borne on long branching axillary stalks. Two of our species of *Chascanum* are rather weedy

plants, but the third, *C. latifolium*, is a definitely handsome perennial, the annual shoots a foot or two high bearing shining opposite leaves and a long terminal spike of clear white or pale mauve flowers: it is typically a plant of upland grassveld, sometimes flowering in profusion in burnt ground. Finally may be mentioned *Premna mooiensis*, a soft-leaved shrub or small tree with white or yellowish flowers, occurring in the Lebombo range, especially in the forests, and having a singularly unpleasant smell when handled.

The genus *Verbena* itself is represented only by introduced species—the tall slender *V. bonariensis* with magenta flowers, the low-growing *V. venosa*, forming bright magenta patches by roadsides, and the familiar rock garden plant with divided leaves *V. tenuisecta*.

Labiatae The Sage Family

This is one of our most important families, consisting entirely of herbaceous perennial plants, characterised by square or 4-angled stems, opposite leaves usually with an aromatic scent, with axillary clusters of short-stalked bilaterally symmetrical flowers. The genera are distinguished mainly on small characters of the calyx, corolla and stamens, and it is not necessary here to refer to many of them, only choosing some of the most striking. Among these the genus *Leonotis* is conspicuous, the three or four local species being erect plants up to six feet or more high, with dense clusters of flowers with long hairy orange or yellow corollas, spaced out along the upper part of the stem: they are plants of open situations or bushy places in the highveld and middleveld, and never seem to be really abundant. We have several species of *Stachys*, mostly rather straggling plants with white or mauve flowers: perhaps the most frequent is *S. galpinii*, a few inches in height with a somewhat unpleasant smell, occurring around the edges of fixed rocks in the highveld. Two "mints", varieties of *Mentha aquatica* and *M. longifolia*, characterised by the strong scent of menthol in their leaves, occur here and there in upland swamps. Two (perhaps three) species of *Pycnostachys* occur: *P. urticifolia* being a shrubby plant occasional in bushy places in the highveld, with bright "gentian-blue" flowers, and *P. reticulata*, with its dense terminal spikes of pale mauve flowers, being abundant in upland swamps: both have prickly calyces which persist after the corollas have withered. The genus *Plectranthus* is one of our most important, comprising several showy and distinctive plants. *P. fruticosus* is an abundant soft shrub, growing luxuriantly in forest margins in the highveld, and in a more stunted form when it emerges to the outside: the leaves are broad and toothed and the magenta flowers are borne on branching slender peduncles a foot or two in length; *P. arthropodus* is another robust plant of montane forests, while *P. calycinus*, with dense panicles of pink, mauve or white flowers, occurs on open highveld hillsides; *P. grandidentatus*, *P. madagascariensis* and *P. tomentosus* are plants of rocky situations in the highveld. *P. laxiflorus*, with white flowers well spaced out, grows densely in

moist upland situations and by streams; *P. nummularis* is a dainty small trailing plant with spikes of white flowers, growing on densely shaded rocks at a variety of altitudes. Some species approach closely to the genus *Coleus*, which, however, is mainly of a lowveld habitat. *Hoslundia opposita* is a rather insignificant plant of bushy lowveld localities, whose calyces become yellow and fleshy after flowering. Our two species of *Iboza* are robust branching shrubs: *I. galpinii* being a stout plant of rocky outcrops in highveld and middleveld, with broad downy toothed leaves, rather dense panicles of very small white flowers: *I. riparia* being a lowveld species with smaller leaves and much looser showy panicles of light or darker mauve flowers. *Geniosporum angolense* is a locally plentiful swamp plant whose white or mauve flowers have a few basal bracts marked with a conspicuous white blotch. Some, though not all of our species of *Hemizygia* are noteworthy for the showy wavy mauve bracts which occur at the tips of the inflorescences: they are among the earliest plants to appear in spring, especially along the fire-belts in the grassveld: *H. thorncroftii* is the commonest species around Mbabane. *Orthosiphon serratus* is a tall handsome magenta-flowered plant of bushy places in the bushveld (abundant near Komati Bridge) flowering through a great part of the year: and *O. australis* is somewhat smaller. The species of *Ocimum* are strongly aromatic weedy plants: the cultivated plant known as "herb basil" being used for flavouring. Finally, one of the most abundant and noticeable highveld and middleveld perennials is *Becium obovatum*, whose heads of mauve flowers are characterised by their long protruding stamens: this species also responds to grass-fires, provided these are not too frequent (i.e. several years apart).

Solanaceae The Tomato Family

Mainly herbaceous plants or short-lived shrubs, many species tending to become weeds. The most important genus in Swaziland is *Solanum* of which we have about a dozen species, some indigenous, some introduced, most of them bearing prickles and having conspicuous fruits. *S. giganteum* is a soft-wooded small prickly tree with large leaves grey beneath, and corymbs of mauve flowers followed by scarlet berries. *S. mauritianum* (the "bugweed") is another small tree up to 15 feet high with large grey leaves having "ears" at the base, no prickles, and mauve flowers, which becomes an aggressive weed. *S. nigrum* is a small shrublet with pea-sized edible black fruits. *S. coccineum* is a very prickly plant of the bushveld with bright-red berries the size of a cherry. *S. panduraeforme* is an abundant roadside weed in the bushveld with rather attractive mauve flowers and yellow fruits an inch in diameter. *S. sodomaeum* is a large horrific copiously prickly shrub with fruits the size and shape of a lemon. The tomato (*S. lycopersicum*) and the "brinjal" (*S. melongena*) occasionally run wild. *S. seaforthianum* is a tall climber with attractive clusters of blue flowers which is

inclined to escape from gardens. And there are several other large-leaved species to be met with in bushy places or disturbed soil.

The species of *Lycium* are hard-wooded shrubs, unlike most of the Solanaceae, one of them *L. albiflorum* occurring sparingly in the bushveld.

Other conspicuous weeds include species of *Physalis* (the Cape gooseberries) with inflated calyx, and *Nicandra physaloides*, a tall plant with attractive pale blue corolla and inflated calyx, common in waste ground in Mbabane. The "thorn-apple", *Datura stramonium*, is a noxious weed of old cultivation and waste places. Another potential weed, locally aggressive, is the attractive-looking shrub *Cestrum aurantiacum* with orange tubular flowers and white fruits.

Scrophulariaceae The Antirrhinum Family

The great majority of our members of this large family are herbaceous plants, perennial or annual, but there is one good-sized tree, *Halleria lucida*, and one shrub, *Bowkeria cymosa*. *Halleria lucida* is a frequent tree among groups of boulders in the highveld, occasionally entering the forest: it is noteworthy in bearing its orange-coloured curved tubular flowers in clusters on the old branches, and unlike most of the family its fruits are fleshy berries. *Bowkeria cymosa* is a large shrub found near upland streams: its leaves are usually in whorls of three, and its flowers are white, spherical in shape and almost completely closed at the mouth.

One of the most conspicuous members of the family is *Sutera grandiflora*, frequent in bushy places and forest margins from the lower limits of the highveld downwards: its bright blue-mauve phlox-like flowers, borne in succession at the ends of the slender leafy branches, are produced at almost all seasons of the year. Some Scrophulariaceae are swamp or moist-ground plants, among which may be mentioned the two species of *Nemesia* with pale mauve or pink "snapdragon-like" closed spurred flowers, the creeping *Diclis reptans* with white spurred flowers, and the handsome *Melasma scabrum* with flowers white or yellow above, darker below. The species of *Ilysanthes* are tiny annuals, an inch or two high, found in peaty ground and rock hollows. *Graderia scabra* is an attractive highveld perennial with tufted growth, sharply lobed leaves and pink or mauve foxglove- or pentstemon-like flowers.

Many members of the family are complete or partial parasites, their roots attached underground to the roots of other plants. In the genus *Harveya* parasitism is complete, the plants containing no chlorophyll and having vestigial leaves: some of them have strikingly beautiful flowers; for instance, *H. coccinea* with pairs of large pink flowers, yellow in the tube, occurring in clumps in upland forest, and flowering around midsummer, with sometimes as many as 50 inflorescences in one clump, a foot to 18 inches tall, or in a reduced form on montane rock ridges; while *H. speciosa*, a rare plant of upland forest margins and bushy places, has ivory-coloured flowers, yellowish in the throat, the tube

reaching 5 inches long and the expanded corolla-segments 4 inches across, flowering in the late summer.

Other partial parasites (containing chlorophyll and having developed leaves) include species of *Alectra* with yellow flowers, one species a troublesome weed of cultivation, and of *Striga; S. elegans*, having brilliant scarlet flowers, being a serious pest of mealies. Partial parasitism also occurs in *Cycnium adonense*, a very striking and frequent low-growing plant with large pleated white flowers which turn blue-black when injured; another handsome though scarcer *Cycnium* is *C. racemosum* which reaches two feet in height and has large bright pink flowers: both are plants of the highveld and middleveld.

It is characteristic of all these parasitic plants that they become black on drying.

There are several genera with small flowers and a very limited number of seeds in the capsule which are often included in this family, though some botanists separate them as Selaginaceae. Of these we have two or three closely related species of *Selago* with small leaves and bright mauve flowers in clusters, abundant on banks and roadsides in the highveld, of which the prostrate *S. wilmsii* is the most plentiful, while other species are tall erect plants: and there are three or four other species of Selago as well as other genera which need not be specially mentioned here.

We have one plant, *Buttonia superba*, which is a somewhat rare bushveld climber, having sprays of showy pink flowers produced on the top of the supporting bushes: the climbing habit is very rare in this family though common in the related Bignoniaceae.

Several other genera of Scrophulariaceae occur in Swaziland, for which reference should be made to a Herbarium.

Bignoniaceae The Tecoma Family

This family is closely related to the Scrophulariaceae, but consists entirely of woody plants, trees, shrubs or lianas, and is almost wholly tropical. Many of them have handsome flowers and are often grown in gardens in warm climates.

In Swaziland we have a few noteworthy members of the family. The so-called "kafir-honeysuckle", *Tecomaria capensis* occurs here and there in the bushveld, with straggling growth, pinnate leaves and rich red or orange tubular flowers: it is frequently used as a hedge plant. *Kigelia pinnata* is a well-known bushveld tree though rather scarce in Swaziland: it is known as the "sausage tree" on account of its large hanging polony-like fruits: the leaves are evergreen, pinnate and leathery, casting dense shade, and the flowers, produced in early spring, are very large, deep purplish-maroon in colour and hang from the branches on long peduncles. *Rhigozum zambesiacum* is a densely thorny rigid shrub, the thorns being tapering opposite lateral branches, occasionally loaded with very handsome bright-yellow flowers. So far it has only been noticed near Sipofaneni.

Pedaliaceae The Sesame Family

This is also a family related to the Scrophulariaceae, but having fruits of a variety of remarkable shapes. It is sparingly represented in Swaziland. One species, however, *Ceratotheca triloba*, is both abundant and conspicuous: it is a plant of about 6 feet in height, bearing 3-lobed leaves with an unpleasant smell, and spikes of showy pinkish-mauve (occasionally white) foxglove-like flowers, followed by hard capsules terminated by a pair of sharp spines. *Pterodiscus aurantiacus* is a rather scarce low-growing bushveld plant with a large underground tuber, pinkish-brown flowers and four-winged fruits suggesting those of a Combretum. *Dicerocaryum zanguebaricum* is a widely trailing plant, occasional in the bushveld, with attractive purplish flowers and a vicious disc-like fruit sitting flat on the ground with two sharp spines pointing upward and penetrating the feet of the unwary.

Gesneriaceae The Gloxinia Family

This family, which includes the well-known *Gloxinia* of gardens, is represented in Swaziland by several species of the remarkable genus *Streptocarpus*. In some species the plant consists of a single large leaf rooted at the stalk with a puckered surface, which grows at the base and often dies off at the tip: the inflorescences, more or less branched, arise from the upper surface of the leaf near its base. This is the case in our *S. dunnii*, itself remarkable as growing in exposed situations at altitudes of over 4,500 feet: its leaf is tough and grey, and if grown in a sheltered situation, it may reach over 2 feet in length and nearly a foot wide, though in its natural habitat it dies off at the end and the living part seldom exceeds a few inches in length: its inflorescences are a few inches high and bear a number of crowded tubular reddish flowers about an inch in length. In other species additional leaves may arise from the base of the first, so that an irregular rosette is formed, the leaves applying themselves closely to the rock or tree-trunk on which the plant grows. *S. cyaneus* is abundant on vertical rocks in sheltered ravines in the highveld: it dies off completely in the winter, but revives at the first summer rain, and the leaves may grow to over a foot long: the elegant flowers are borne 1–3 on a slender peduncle and are deep mauve with yellow stripes on the lip. *S. galpinii* is usually found tucked deeply into rock crevices or sometimes on rocks in the forest: its flowers are deep violet in colour and recall those of the well-known "African violet", Saintpaulia, much fancied as a pot-plant. *S. davyi* has small tubular cream-coloured flowers and grows in the shade of overhanging rocks. *S. micranthus* is a small-flowered species favouring earthy banks in montane forests, and has a deep purple underside to its leaves. *S. wilmsii* is usually found on vertical tree-trunks. *S. comptonii* is a little-known, small-flowered species. Another species, probably unnamed, fairly frequent in the Mbabane district, has white Lobelia-like flowers.

All the Streptocarpus species require abundant moisture for full growth and

occur in mist-belt or heavy rainfall conditions, i.e. in the mountains above 4,000 feet. The fruits are characteristic, being long, slender and spirally twisted (hence the genus name) and the seeds are very minute and wind-distributed. The common name "Cape Primrose", otherwise very inappropriate, refers to the appearance of the leaves in some species.

Lentibulariaceae The Bladderwort Family

A small and peculiar family of insectivorous plants, our only genus, *Utricularia*, being remarkable for its highly specialised small traps which catch and digest minute aquatic insects, crustacea, etc. Some species grow in open water, e.g. our *U. inflexa* var. *stellaris*, whose submerged stems bear innumerable finely ramified threads to which are attached the small bladder-like traps, each about $\frac{1}{8}$ inch long: an erect stem rises into the air and bears the yellow flowers above the surface of the water, being supported by about five floats in a ring. Other species grow in upland swamps: *U. livida* having very slender erect peduncles, sometimes as much as 18 inches high with one or more widely spaced white or mauve spurred flowers: *U. prehensilis* being remarkable in that its thread-like peduncle is able to twine round grass or other slender stems, so supporting its bright yellow flowers; it has very minute strap-shaped leaves in a rosette on the surface of the ground.

The trap is an extraordinary device, the air inside being under reduced pressure, so that when the flap-door is sprung by the push of an inquisitive insect, a rush of water carries it inside, whence it cannot escape and is digested and absorbed.

Acanthaceae The Acanthus Family

This is a very large family, mainly tropical and subtropical, very well represented in Southern Africa, and Swaziland has a considerable number of genera and species. Most of them are herbaceous plants, but a few are shrubs, and they occur from the lowveld up to quite high altitudes. Some of them are very abundant, e.g. the beautiful *Thunbergia atriplicifolia*, a highveld perennial with a thick rootstock forming a tuft of leafy branches rapidly in the spring or after a grass-fire, with broad cream or primrose-yellow flowers which rarely last for more than a day. Another species, *T. natalensis*, is rare, growing among rocks in moderate shade, having erect stems a few feet in height and large pale-blue axillary flowers. Two or three other species of *Thunbergia* occur as undergrowth in the bushveld. *Hygrophila auriculata* is a conspicuous plant with clusters of magenta or mauve flowers along the leafy stem, growing here and there in bushveld riverbeds, and remarkable, in a plant of such a habitat, in having sharp spines which stand out in a ring below the flowers. We have several species of *Barleria*, most of them very attractive compact or scrambling plants with blue-mauve flowers; some are grown as garden plants, though the corollas fall at a

touch. *B. crossandriformis*, occasional in the Lebombo poorts, has bright-orange flowers somewhat like those of the Crossandras. *B. elegans* is a frequent scrambling plant of bushveld stream-banks, with white corollas and prickly floral bracts. *B. obtusa* is a middleveld species, successful in cultivation, but usually grazed almost to the ground by sheep. *B. ovata* is a robust erect species with handsome but fugacious blue-mauve flowers. Our two species of *Crossandra* are definitely beautiful plants, and *C. greenstockii* is well deserving of cultivation: it has a basal rosette of leaves and erect flowering stems a foot or more in height, ending in a dense spike which produces a succession of broad-lipped rich orange-coloured flowers over a long period: it is locally abundant at middle altitudes in good soils. The other species, *C. fruticulosa*, has slightly smaller orange flowers and is a small branching shrublet, occurring in the forests of the Lebombo range, and elsewhere in the lowveld. *Mackaya bella* is a small tree or loose shrub occurring in the undergrowth in montane forests, especially near water: it bears long sprays of charming white flowers along the upper side of the flowering branch (like a *Freesia*). *Ruttya ovata* is a shrub up to 8 feet high with dense erect terminal heads of white flowers: it has rather a wide range of altitude, from the Lebombo poorts to the hills near Hlatikulu, but is never common.

The majority of species of Acanthaceae are rather straggling plants with mauve, white, pink or occasionally yellow flowers, often two-lipped, and the distinctions between the genera are very technical. Some are very common, the white-flowered *Hypoestes verticillaris*, for instance, occurring in almost every bushy place in the hills, and *Justicia flava* with yellow flowers being extremely common in bushveld undergrowth. There are very few thickets or forest margins in the Territory which do not shelter one or more Acanthaceous plants. Some others are plants of open grassland, the white-flowered *Justicia anagalloides* and species of *Chaetacanthus* being extremely abundant, their stout rootstocks enabling them to survive grass-fires. The fruits of the Acanthaceae contain very few seeds which are shot to a distance by the explosive dehiscence of the fruit-walls, this often taking place when wetted: and the seeds themselves may be coated with water-absorbing mucilaginous hairs.

Plantaginaceae The Plantain Family

Apart from one or two introduced weeds we have only one species belonging to this family in Swaziland, viz. *Plantago dregeana*, a curious perennial plant occurring by the side of streams in middle altitudes. It has large simple leaves with a long petiole and a blade up to 15 inches long and 8 inches broad, the small flowers being borne in a dense slender spike sometimes over 3 feet long.

Rubiaceae The Gardenia Family

This large and varied family has many representatives in Swaziland, some trees, some herbaceous plants. Most of them are recognisable, even without

flowers, by the possession of opposite leaves, usually in pairs, with stipules, or at least a transverse flap or ridge, on each side of the stem between the leaf-bases.

Among the trees some of the most striking are the Gardenias, of which we have four species, none of them at all common. *Gardenia spatulifolia* is found here and there on the Lebombo range: it is a very rigid shrub or small tree not usually more than 10 feet high, with branches mostly in threes, standing out at right angles to the stem, tapering to a sharp end and bearing a few rather shiny spathulate leaves: the sweet-scented flowers are white, soon fading to yellow and short-lived, with a slender tube 3–4 inches long and about 8 spreading lobes with a spread of about 3 inches: the large hard woody grey fruits vary a good deal in shape, being oval or round, more or less ridged and studded with small warts, and persisting for a long time on the branches. *G. cornuta* is occasional in the poorts of the Lebombos, having rather smaller but very long-tubed white flowers and smooth oval yellowish fruits about 2 inches long. *G. neuberia* is a densely leafy very rigid shrub, frequently thorny, the flowers with a tube about $1\frac{1}{2}$ inches long and a spread of about $1\frac{1}{2}$ inches, the fruits being spherical and about $\frac{3}{4}$ inch in diameter: it occurs sparingly on rocky ridges in the lowveld and middleveld.

Closely related to the Gardenias is the genus Rothmannia with two species. *R. capensis*, which can become a tree of 30 feet high or more, though usually much less, is a leafy evergreen and occurs here and there on the hills round Mbabane and near Hlatikulu: the flowers are about 3 inches long, the tube spreading from just above the base and the five lobes tapering to narrow points; they are very sweet-scented, ivory-coloured with darker spots in the throat, and are followed by soft spherical fruits about $1\frac{1}{2}$ inches in diameter.

The other species, *R. globosa*, has a differently shaped corolla, the tube being much wider and the lobes relatively much smaller: it is a rare plant in Swaziland, being only seen in the deep river valleys of the Havelock area.

One of the biggest trees is *Adina microcephala* var. *galpinii* which is frequent and characteristic along the rivers in the lowveld and attains great size and height: it is evergreen, copiously leafy, the leaves being lance-shaped, up to about 7 inches long by $1\frac{1}{2}$ inches wide: the flowers are small and white, and are borne in stalked spherical heads in the leaf-axils. A frequent tree of the highveld, growing typically among granite boulders, is *Psychotria capensis:* it is a robust evergreen with shiny leathery leaves and terminal groups of yellow flowers followed by small oval black berries: it sometimes enters forest, taking up a rather different form and being a little difficult to recognise. Another very frequent small tree or shrub occurring among boulders in the highveld is the curious *Cephalanthus natalensis* which has small greenish flowers in spherical heads up to an inch in diameter, followed by a rather dry soft compound fruit which is white tinged with pink and is more or less edible. Another Rubiaceous tree bearing an edible fruit is *Vangueria infausta*, the "Wild Medlar", so called from the size, general appearance and consistency of the fruit when fit to eat. It sometimes

reaches 20 feet in height, but is usually less, with opposite pairs of soft velvety leaves reaching 6 inches long and 3 inches wide: the small white or greenish flowers are borne in lateral panicles, an inch or two long, and appear in September while the leaves are still developing. It occurs in sheltered places in the middleveld, extending a little in both directions. A second species, *V. cyanescens*, with smaller, less velvety leaves, smaller fruits and frequently sharp straight thorns an inch long, occurs here and there in the bushveld. *Burchellia bubalina* is one of our most attractive flowering trees, occurring frequently among groups of granite boulders in the highveld. Owing to repeated burning and browsing it seldom displays its full beauty, and even when protected from fires and stock, it is so slow growing that it needs many years to attain to small-tree dimensions. The leaves are shiny with conspicuous veins: the corollas are tubular, slightly dilated below the small lobes, about $1\frac{1}{4}$ inches in length, of a fine scarlet or orange-red colour, and are borne in a terminal tuft, the sepals enlarging somewhat after the corollas have fallen and turning a bright yellow colour: flowering takes place at almost all times of the year. Of our two species of *Xeromphis*, *X. rudis* is one of the most frequent shrubs on hills in the bushveld and on the Lebombo range; it is a sprawling shrub with straight rigid, often spine-tipped, branches bearing numerous tufts of small rounded glabrous leaves: the flowers are white or cream, soon fading yellow, appearing in winter and spring. Our other species is very similar but less abundant. We have several species of *Pavetta* which are attractive shrubs with usually "posy-like" or spherical clusters of white flowers whose thread-like styles project far beyond the mouths of the corollas. Perhaps the most charming is *P. cooperi*, found occasionally as an irregular shrub among granite boulders in the highveld: its spherical white flower-heads are up to 2 inches in diameter and the styles project another inch all round: the leaves are soft and velvety. *P. barbertonensis* is another showy species, fairly frequent as a prostrate or sprawling shrub on the Lebombo Hills, and there are two or three other relatively small-leaved species. The most robust species, however, is *P. edentula*, a conspicuous shrub or small tree found especially on rocky places in the middleveld and extending to the borders of the lowveld: its pale green shiny leaves are up to 7 inches long and $1\frac{1}{2}$ inches wide, and the white, scented flowers are borne in broad corymbs on stout lateral branches below the terminal leaf clusters: it can be seen plentifully near the road on the Mbabane side of the Komati Pass. Another robust species is the shrubby *P. schumanniana* of the bushveld, especially near Tulwane and Sipofaneni, with leathery rather rough leaves and lateral clusters of unusually (for the genus) small sweet-scented flowers, followed by numerous pea-sized black berries. A peculiarity of most species of *Pavetta* is the presence of small dark spots in the tissues of the leaf, these being occupied by colonies of bacteria. *Kraussia schlechteri* is a rather frequent slender shrub, sometimes reaching 10 feet high, and characteristic of stream-banks and valley bottoms in the lowveld. The lance-shaped leaves tend

to spread out in two rows on the slender spreading stems, bearing loose panicles of white flowers in their axils, these being followed by small black berries which usually hang down below the branches. *Tarenna barbertonensis* is a somewhat similar, but more branched, small tree occurring on rocky slopes in the bushveld. Our three species of *Tricalysia* are densely branched shrubs, copiously leafy, the leaves being only an inch or so in length, and the white sweet-scented flowers being borne in dense clusters in their axils, followed by small red or black berries. They are all shrubs or small trees of the highveld, straying into the middleveld, occurring especially on rocky slopes along the borders of forests. *T. capensis* enters some of the highveld forests, but the other common species, *T. galpinii*, is usually found outside and is a good deal denser in growth. There are other woody Rubiaceae in our flora, but it is not necessary to mention them here.

Turning to the herbaceous members of the family, probably the most familiar is the genus *Pentanisia*, of which we have two or three abundant highveld perennial species. *P. prunelloides* appears early in the spring, especially on burnt ground: it is a soft erect plant with a few pairs of opposite leaves and a terminal head of bright Cambridge blue flowers, each with five corolla lobes. Another plant, sometimes regarded as a sub-species of the above, has prostrate growth and much broader leaves, but similar flower-heads just raised above the surface: it is locally frequent in the higher parts of the highveld. *P. angustifolia* is similar, but usually grows in tufts of several stems and has much narrower leaves, and is also common in the highveld and middleveld. *Conostomium natalense* is also a frequent perennial of the highveld, bearing somewhat similar blue flowers: but it flowers in the late summer and the corollas have only four lobes. Another very frequent early flowering perennial of the highveld and middleveld is *Kohautia amatymbica*, whose slender almost unbranched and sparingly leafy stems bear a few white or cream-coloured long-tubed 4-lobed small flowers in a terminal cluster, opening and becoming sweet-scented in the evening.

A few words must be said about a group of herbaceous or slightly woody Rubiaceae in which the flowers are very inconspicuous, lacking all the colour and perfume associated with pollination by insects. Instead of this the flowers show all the signs of being pollinated by wind currents: the anthers are borne well outside the corolla, exposing the light powdery pollen to the wind, and the stigmas are also relatively long and feathery, enabling them to catch the air-borne pollen. In the majority of cases the flowers are unisexual, and usually the male and female flowers are borne on separate plants. Most of these plants might well escape the notice of the observer, and students are often surprised that they are included in the same family as the showy scented trees already described. [The same distinction between insect-pollinated and wind-pollinated flowers is exactly paralleled in the family Rosaceae: anything superficially more unlike a Rose than a *Cliffortia* is difficult to imagine.] The Rubiaceous genera falling in this category, found in Swaziland, are *Anthospermum*, *Borreria*,

Galopina, and there are some borderline cases about which insufficient is known.

Valerianaceae The Valerian Family

We have only one species belonging to this small family, *Valeriana capensis*, a herbaceous plant several feet high, with lobed or divided leaves and compact or rather loose inflorescences of small white flowers. It occurs, though somewhat uncommonly, in upland swamps and the margins of streams, and flowers during most of the summer.

Dipsacaceae The Scabious Family

Both South African genera, *Scabiosa* and *Cephalaria*, are represented in Swaziland by plants with superficially similar flower-heads. At a casual glance they might be mistaken for Compositae, but are easily distinguished by their loose stamens, whereas in the Compositae the anthers are united laterally forming a tube around the style. A form of *Scabiosa columbaria* is an extremely abundant perennial in the highveld, flowering through the middle of summer: it is a foot or two high, its flower-heads being white and about an inch in diameter, and the leaves becoming more and more divided as one ascends the stem. There are four or five species of *Cephalaria* in Swaziland, mostly more robust than *Scabiosa*, with broad leaves, in some species basal, on others borne copiously up the stem, sometimes entire and lobed on the same plant, as in *Scabiosa*: the flower-heads are white and a little more compact than those of *Scabiosa*. One species, probably undescribed, is very abundant on hillsides in the Mbabane district, growing to five or six feet high and flowering in January. The other species are mainly plants of upland swamps. The different species are difficult to distinguish with the literature at present available, and a revision of both genera is very necessary.

Cucurbitaceae The Cucumber Family

We have a considerable number of species of this family in Swaziland. They are almost all perennials with underground rootstocks, the annual growth climbing over bushes by means of slender usually unbranched tendrils. The leaves are more or less deeply divided, and in many cases have an unpleasant smell. The flowers are rather delicate, yellowish or white, often veined. The sexes are separate, with male and female flowers usually on different plants. The fruits are the most striking character, being often brightly coloured, orange or red in our species of *Coccinia*, striped or variegated in *Trochomeria*, covered with soft outgrowths or hard spines in *Cucumis*. The only abundant species are the highveld *Cucumis africanus* with small yellow flowers, which usually trails on the ground and leaves its yellow bristly fruit lying in the grass; and *Melothria punctata*, with small white flowers and bright red berries, which climbs luxuriantly over shrubs: both die off completely in the winter.

Some of our Cucurbit fruits are said to be edible, especially the sweet variety of *Cucumis naudinianus*, but most of them are bitter and often poisonous.

Campanulaceae The Harebell Family

Two of our four genera include well-known attractive herbaceous perennials, mostly of the highveld, usually with bright blue flowers. *Wahlenbergia* is represented by several species, whose bell-shaped symmetrical flowers in most of our species are borne loosely at the tips of slender branching stems a foot or two high: the most frequent species is *W. undulata*, with narrow wavy-edged leaves, and *W. virgata* whose flowering stems are leafless. A very different looking species is *W. montana* which forms compact little clumps in stony mountain situations from 4,500 feet upwards: it has sharp pointed leaves and rather large unstalked white flowers borne erect among the leaves. The genus *Lobelia*, familiar in gardens, has flowers which are symmetrical only about one plane. We have several species, perhaps the most attractive being *L. decipiens*, locally abundant and social in the highveld, especially in moist sandy places, with thread-like rhizomes and slender erect unbranched stems bearing small leaves and a few flowers at their tips, the corollas being of varying shades, one of the most attractive having the upper lip violet-coloured, the lower blue, sometimes with yellow markings. Two other species, *L. erinus* and *L. filifolius*, are rather weedy plants with small bright blue or white flowers, occurring in grassveld at almost all altitudes. A third genus, *Cyphia*, includes two local species of the highveld and middleveld: one of them, *C. elata*, includes a large number of varieties, about the validity of which botanists disagree: most of them are rather sturdy erect plants, sometimes more than 3 feet in height: the individual flowers are rather Lobelia-like, but they are borne in a dense erect spike terminating the stem, which bears numerous broad toothed leaves: the corollas may be white, different shades of yellow, mauve or pink: the flowering period is from December to March. The other species, *C. bolusii*, is more slender, few-leaved, and the flowers are widely-spaced on a terminal axis: the corolla is white or pale pink: flowering period October and November, or rather later at high altitudes: it favours moist slopes in the highveld and is seldom abundant.

Compositae The Daisy Family

The Compositae are regarded by many systematic botanists as the most advanced (i.e. the highest in the evolutionary series) of the flowering plants. The reasons for this view are rather technical, and it may be thought more natural to regard plants with very elaborate and unusual flowers, such as the Orchids or the Asclepiads, as being higher in the scale of evolution. But the Composites show a combination of several features which are all regarded as "advanced". The individual flower (or "floret") is small and in nearly every case several of them are massed together into a flower-head which very often has specially

modified, often sterile florets to render it conspicuous; the flower-head is enclosed in an involucre of bracts which serve it in the same way as the calyx does in an "ordinary" simple flower: the true calyx of each floret is usually replaced by a "pappus" of more or less feathery hairs or scales which enable the small fruit to be distributed by wind: the ovary is "inferior", i.e. below the level of the corolla, and contains only one ovule, so that there is no need for the fruit to open: the stamens are all fused together in a ring round the style: and finally, the vast majority of the Compositae are herbaceous—trees being regarded as more "primitive" than herbs—this enabling them to reproduce fast.

Not only is this the most advanced family: it is also the most numerous, this in itself being a sign of successful powers of adaptation to conditions of life. The actual number of species so far described has been recently estimated as 17,000. Some of the individual genera contain a very large number of species, e.g. *Senecio*, a world-wide genus of very varied forms, which probably includes about 2,500 species. Southern Africa is particularly well furnished with Compositae, and Swaziland has a fair share, over 300 species and varieties having been recorded in the Territory. Among these the biggest genera are *Senecio* with about 60 and *Helichrysum* with about 70 species and varieties.

In addition to our indigenous Composites there are quite a number of aliens which have established themselves all too firmly as weeds of disturbed ground. Such are the various species of *Bidens* ("black-jack") with barbed pappus bristles, *Xanthium* ("cockle-burr"), *Tagetes* ("khaki weed"), *Galinsoga*, *Acanthospermum* ("star-burr"), the showy *Cosmos*, *Hypochoeris* (often called "dandelion"), etc.

The conspicuous flower-heads of the "daisy" type, such as seen in *Gerbera*, *Callilepis*, many Senecios, etc., owe their showiness to the "ray-florets", which are usually strap-shaped and sterile. In the "everlastings" (many species of *Helichrysum*), however, it is the involucral bracts surrounding the small tubular disc-florets which make the flower-heads conspicuous, and ray-florets are absent. (Ray-florets are absent also in many species of *Senecio:* similarly some of the robust prickly thistle-like species of *Berkheya* have conspicuous ray-florets, others are without them.)

It is not necessary to go through the whole of our Compositae in detail, but a few genera call for special mention. *Gerbera* includes *G. jamesonii*, the "Barberton Daisy", with bright scarlet ray-florets, a favourite garden plant with hybrids of many colour varieties: this occurs sparingly on rocky outcrops in partial shade in some bushveld localities; *G. speciosa*, also a very handsome species with white or magenta ray-florets; *G. kraussii* with white rays, pink below; *G. ambigua*, a common lowveld species with yellow (sometimes white) flowers, and some other highveld species. *Callilepis* species have large flower-heads, the rays being pure white, the disc often dark-coloured. *Berkheya* has many local species, some

up to 8 feet high, most of them covered with sharp prickles on stem, leaves and involucres: the flowers are almost always yellow and very conspicuous. *Osteospermum jucundum* is a straggling highveld species with handsome magenta flower-heads.

A few Compositae are large shrubs or small trees, usually bearing clusters of not showy flower-heads: among these we have *Brachylaena transvaalensis* in valleys and along forest margins in the highveld, with large leaves grey-felted below, and *Tarchonanthus galpinii* of the hills and valleys in the Lebombo range, sometimes reaching 25 feet in height. *Vernonia* is an important genus in Swaziland. *V. colorata* is a large shrub, sometimes becoming a tree up to 30 feet high near rivers in the lowveld, with white or occasionally mauve rayless flower-heads. Most of our species are smaller and have mauve or violet flower-heads. *V. ampla* is a very handsome plant reaching 10 feet high, growing along forest margins and in bushy places in the highveld and middleveld with very large leaves and huge trusses of mauve flowers produced at the very end of the summer. Many other species are perennials and some have brightly silvery or white-felted leaves: such are the common highveld species *V. oligocephala* and *V. natalensis*. *V. hirsuta* is a common sturdy highveld perennial with clusters of showy magenta flower-heads: and there are several others.

Some Composites are rampant climbing plants, twining and scrambling over bushes and trees: *Mikania cordata* has great numbers of small white rayless flower-heads. Some species of *Senecio* are also climbers, e.g. *S. deltoideus* of bushy places in the highveld, and the handsome *S. tamoides* of montane forests.

The Compositae also include a number of succulent plants, especially in the genus *Senecio* and its close allies. *S. galpinii* is a fine leaf-succulent growing in local masses on rock-surfaces in the highveld, having large single rayless flower-heads of a fine orange colour. *S. viminalis* is succulent in both stem and leaves, and is locally plentiful in the bushveld, scrambling over other bushes, with copious and conspicuous white pappus. *S. longiflorus* is occasional on rock outcrops and has erect glaucous fleshy stems and scattered lateral sessile white flower-heads.

Finally the genus *Helichrysum* is represented by a large number of species, especially in the highveld, often with handsome grey foliage and clusters of small yellow rayless flower-heads: and there are several much more conspicuous species of the "everlasting" type with white, pink or yellow persistent involucres, which retain their colour for many years after drying. Of these, *H. cooperi* and *H. setosum* are very conspicuous with golden-yellow involucres, the former very plentiful in upland swamps and flowering at the end of the summer, the latter found in drier bushy places. There are a large number of species with smaller yellow heads, often very showy, and frequently aromatic. *H. wilmsii* of high altitudes has shining bracts, white above and wine-coloured below. *H. elegantissimum* and *H. marginatum* have bracts shining white on both sides. *H. adeno-*

carpum has strikingly beautiful heads, the bracts pink above and darker pink below. And there are a few very attractive species of the "alpine" type occurring as dense mats on bare rock surfaces at high altitudes, e.g. *H. galpinii*, *H. nanum* and *H. chionosphaerum*.

Part IV

BOTANICAL AND SWAZI NAMES OF SWAZILAND PLANTS

The following list of botanical names and their Swazi equivalents is founded on lists drawn up by Major O. B. Miller, Forest Officer for Swaziland and Bechuanaland Protectorate during the years 1938–1944, and published in the Journal of the South African Forestry Association, April 1941. It consists almost entirely of trees and shrubs. A number of additions have been made from various sources and a few names have been omitted. The botanical names have been revised in accordance with recent work on nomenclature and the Swazi names are given in their modern spelling for which Mr. Christopher Dlamini is responsible. A number of names, especially of grasses, have been obtained from G. Murdoch and J. P. Andriesse "Soil and Irrigability Survey of the Lower Usutu Basin (South) in the Swaziland Lowveld".

Authorities are not cited for the botanical names as these can be obtained by reference to the Check List through the Index to Genera.

The Swazi names, as with popular names in every country, must always be regarded critically and not as embodying complete accuracy. The same name may be used for two or more botanically distinct plants: and conversely the same plant may be known by two or more distinct popular names. When used with caution, however, popular names can often lead to correct identifications, but these should always be verified by reference to botanical literature or a herbarium.

BOTANICAL NAMES WITH SWAZI EQUIVALENTS

Acacia ataxacantha	Lugagane
,, *borleae*	Lubibi
,, *davyi*	Umgamba
,, *gerrardii*	Singa
,, *karroo*	Khayimela, Singa
,, *nigrescens*	Umkhayo
,, *retinens*	Sibambempala
,, *senegal var. rostrata*	Umhlahlalinye
,, *sieberiana var. woodii*	Umnganduzi
,, *swazica*	Khayimela
,, *tortilis ssp. heteracantha*	Sitfwetfwe
,, *xanthophloea*	Umhlafutfo
Acalypha angustata	Umsongo
Acokanthera oppositifolia	? Inhlungunyembe
Adina microcephala var. galpinii	Umhlume
Afzelia cuanzensis	Umkolikoli, Umshafunti (P.E.A.)
Albizia versicolor	Umvangatana
Aloe marlothii	Umhanga
,, *saponaria*	Amahala
,, *spp.*	Inhlaba
Amarantus hybridus	Imbuya
,, *thunbergii*	Lisheke
Androstachys johnsonii	Ubukunku
Annona senegalensis	Umtelemba
Anthiocleista grandiflora	Umhobohobo
Antidesma venosum	Inhlalamahubulu
Apodytes dimidiata	Umdzakane, Ngumnongwane
Aristida congesta var. barbicollis	Umkonkoni
Balanites maughamii	Umnunu
Bauhinia galpinii	Lusololo
Bequaertiodendron magalismontanum	Umnumbela
Berkheya setifera	Mavambuka
Bidens pilosa	Ugadolo
Bolusanthus speciosus	Umhohlo
Boscia rehmanniana	Ngungcotfo
Bothriochloa insculpta	Imbutane
Brachiaria brizantha	Ipunte
Buddleia salviifolia	Umbatancwephe
Burchellia bubalina	Umhlozana
Capparis tomentosa	Inkunzibomvu
Carissa bispinosa	Umuvusankunzi
Cassia petersiana	Lijoye
Cassine eucleaeformis	Usasatye
,, *aethiopica*	Umgungulutane
Cenchrus ciliaris	Itungamusi
Cephalanthus natalensis	Umfomfo
Ceratotheca triloba	Umdonqa
Chaetacme aristata	Umbambangwe
Chloris virgata	Madolwane
Choristylis rhamnoides	Indlenyatsi
Cissampelos mucronata	Mzandzabuka
Clausena anisata	Umnukelambiba
Cliffortia linearifolia	Intsanyelo
Coleochloa setifera	Utindi
Combretum apiculatum	Imbondvo lamnyama, Inkukutu
,, *gueinzii*	Inkukutwane
,, *hereroense*	Sihlalavane
,, *imberbe*	Umbondozendlovu

Combretum suluense	Lifufu
,, *zeyleri*	Imbodvo lemhlophe
Corchorus tridens	Igusha
,, *trilocularis*	Igusha
Crassocephalum picridifolium	Bnakhambi
Crassula parvisepala	Ingulamlomo
Crocosmia aurea	Isindwendweni
Croton gratissimus	Umhuluka
,, *menyhartii*	Umholuka
Curtisia dentata	Ilincayi, Isincwati, Umboyi
Cussonia paniculata	Umsenge
,, *spicata*	Umsenge
,, *umbellifera*	Umsengambuti
Cyathea dregei	Inkhomankhoma
Cymbopogon plurinodis	Siqunga
Cynodon dactylon	Sinandi
Cyperus immensus	Ikwane
Dais continifolia	Intfocwane
Dalbergia armata	Umcobe
Dichrostachys cinerea	Umsetshane, Umzilazembe, Lusekwane
Digitaria spp.	Lugoba
Diospyros lycioides ssp. guerkei	Umchafutane
,, *whyteana*	Incintsamuti
Dissotis princeps	Umpongamponga
Dombeya rotundifolia	Umuwane
Dracaena hookeriana	Isikhonkwane
Ehretia amoena	Libhungela
,, *rigida*	Umxele
Ekebergia capensis	Ngumnyamatsi, Sitshelete
Erythrina latissima	Inhlangu, Siphamba
,, *lysistemon*	Umsinsi
Erythrophloeum guineense	Umkhanku, Umhlahle
Erythroxylon brownianum	Ijobe, Lijobe, Izaza
Euclea divinorum	Umgwali
,, *natalensis*	Umchithamuzi
Eugenia natalitia	Ijobe, Lijoye
Euphorbia cooperi	Umhlonhlo
,, *ingens*	Ishupa
,, *tirucalli*	Mahumbane
Fagara capensis	Umnongwane
Faurea saligna	Siqualaba
Ficus capensis	Umkhiwane
,, *sonderi*	Khokhokho
,, *stuhlmannii*	Khokhokho
,, *sycomorus*	Umkiwa
Galpinia transvaalica	Umdfubu
Garcinia livingstoniana	Isinyula, Isiphulamshini
Gardenia neuberia	Lubembedfu
,, *spatulifolia*	Siqoba
Gerrardina foliosa	Maluleka
Gossypium herbaceum ssp. africanum	Litjinda
Grewia caffra	Likholo
,, *flavescens*	Umsiphane
,, *hexamita*	Umsiphane
Greyia radlkoferi	Lidlebelembila
Halleria lucida	Umbinda
Harpephyllum caffrum	Umgwenya
Heeria insignis	Safice

Heeria reticulata	Siphici
Helichrysum rugulosum	Impepo
Heteromorpha trifoliata	Umbangandlala
Heteropyxis canescens	Inkunzi
,, *natalensis*	Umhlosheni
Hibiscus cannabinus	Umhlakanye
Hippobromus pauciflorus	Lutfwili
Homalium subsuperum	Umholampunzi
Hyparrhenia dissoluta	Sibutane
,, *filipendula*	Sibutane
Ilex mitis	Libota
Imperata cylindrica	Umtenti
Indigofera sp.	Iqubujeje
Ipomoea obscura	Ijalambu
Kigelia pinnata	Umvongotsi
Lannea discolor	Siganganyane, Intfokolovu
Lippia asperifolia	Mutshwane
Lonchocarpus capassa	Isihomuhomu
Lophiolaena platyphylla	Isidfwata
Loranthus spp.	Liphama
Maesa lanceolata	Umbohlobohlo, Umbongambonga, Magucu
Manilkara mochisia	Umngwamba
Maytenus acuminatus	Umnama
,, *cymosus*	Sihlangu
,, *senegalensis*	Sihlangu
Mimusops zeyheri	Umphushane
Mundulea sericea	Umsindandlovu
Myrsine africana	Umqnaca
Ochna atropurpurea	Umhlezane
,, *natalitia*	Isifubasangala
Olea africana	Umnquma
Oncoba spinosa	Umtfongwane
Ormocarpum trichocarpum	Isitibane
Pachypodium saundersii	Sikumbyambya
Panicum deustum	Indule
,, *maximum*	Ubabe
Pappea capensis var. radlkoferi	Liletsa
Parinari capense	Umvalandlebe
Pavetta schumanniana	Usawoti
Peddiea africana	Intfocwane
Peltophorum africanum	Umkhamkhambe
Phoenix reclinata	Lisundu
Phragmites mauritianus	Umhlanga
Phyllogeiton zeyheri	Umneyi
Pittosporum viridiflorum	Umvusamvu
Plectroniella armata	Insangonsango
Podocarpus spp.	Umsontsi
Pogonarthria squarrosa	Idolwane
Popowia caffra	Libundza, Umxobe
Portulaca quadrifida	Amazenjana
Protea spp.	Isidlungu
Protorhus longifolius	Imfuce, Umhlangoti
Psychotria capensis	Dzilidzili lomhlophe
Ptaeroxylon obliquum	Umthati
Pteridium aquilinum	Luhlindzamfuku
Pterocarpus angolensis	Umvangati
,, *rotundifolius*	Lidlebelendlovu

Pycreus polystachyus	Inconcodwane
Pygmaeothamnus chamaedendrum	Umgulutane
Rapanea melanophloeos	Dzilidzili, Ligcolo, Luqolokulu
Rauwolfia caffra	Umkhamamasi
Rhamnus prinoides	Linyenye
Rhoicissus rhomboideus	Sinwati
,, *tomentosa*	Sinwati
Rhus spp.	Inhlangushane
Rhynchelytrum repens	Umgwane
Salix woodii	Umnyetane
Sanseviera thyrsiflora	Sitfokotfozo
Sarcostemma viminale	Ingcotshwa
Schotia brachypetala	Umutwa, Umvovovu
Sclerocarya birrea	Umganu
Sclerochiton harveyanus	Mazabuka
Scolopia mundtii	Litabane
,, *zeyheri*	Litabane
Setaria sphacelata	Umfuhlo
Sideroxylon inerme	Umnweba
Solanum nigrum	Umjobo
Spirostachys africana	Untfombotsi
Sporobolus pyramidalis	Umsingitane
Stapelia gigantea	Tililo
Sterculia murex	Umbhaba
,, *rogersii*	Ulumba
Strelitzia caudata	Inkhamango
Striga sp.	Isona
Strychnos henningsii	Umnono
,, *innocua ssp. dysophylla*	Umphatsankosi
,, *spinosa*	Umhlala, Umkhwakhwa
Syzygium cordatum	Umncosi
Tagetes minuta	Umbanje
Tarchonanthus galpinii	Qhoboqhobo
Tecomaria capensis	Malungala
Terminalia phanerophlebia	Mangwe
,, *sericea*	Umkhonono
Themeda triandra	Insinde
Trema orientalis	Umbalalaqane
Trichilia emetica	Umkhuhlu
Trichocladus grandiflorus	Inyenyane
Trimeria rotundifolia	Siqandzamatshe, Mahlebe
Triumfetta rhomboidea	Inotwane
Urochloa mosambicensis	Imbubu
Vangueria infausta	Umntulu, Umviyo
Vellozia spp.	Sifunti
Vepris undulata	Ngumotane
Vernonia glabra	Inubujeje
,, *oligocephala*	Inyatelo
Vitex wilmsii	Emakhosikati
Waltheria indica	Indlekwane
Xanthium spinosum	Licume
Ximenia sp.	Ematfundfuluka
Xymalos monospora	Siphisamakhata
Zizyphus mucronata	Umphafa

SWAZI NAMES WITH BOTANICAL EQUIVALENTS

Amahala	*Aloe saponaria*
Amazenjana	*Portulaca quadrifida*
Bnakhambi	*Crassocephalum picridifolium*
Dzilidzili	*Rapanea melanophloeos*
Dzilidzili lomhlophe	*Psychotria capensis*
Emakhosikati	*Vitex wilmsii*
Ematfundfuluka	*Ximenia sp.*
Idolwane	*Pogonarthria squarrosa*
Igusha	*Corchorus tridens*
Igusha	*Corchorus trilocularis*
Ijalambi	*Ipomoea obscura*
Ijobe	*Erythroxylon brownianum*
Ijobe	*Eugenia natalitia*
Ikwane	*Cyperus immensus*
Ilincayi	*Curtisia dentata*
Imbodvo lemhlophe	*Combretum zeyheri*
Imbodvo lamnyama	*Combretum apiculatum*
Imbubu	*Urochloa mosambicensis*
Imbutane	*Bothriochloa insculpta*
Imbuya	*Amarantus hybridus*
Imfuce	*Protorhus longifolius*
Imfuhlo	*Setaria sphacelata*
Impepo	*Helichrysum rugulosum*
Incintsamuti	*Diospyros whyteana*
Inconcodwane	*Pycreus polystachyus*
Indlekwane	*Waltheria indica*
Indlenyatsi	*Choristylis rhamnoides*
Indule	*Panicum deustum*
Ingcotshwa	*Sarcostemma viminale*
Ingulamlomo	*Crassula parvisepala*
Inhlaba	*Aloe spp.*
Inhlalamahubulu	*Antidesma venosum*
Inhlangu	*Erythrina latissima*
Inhlangushane	*Rhus spp.*
? Inhlungunyembe	*Acokanthera oppositifolia*
Inkhamango	*Strelitzia caudata*
Inkhomankhoma	*Cyathea dregei*
Inkukutu	*Combretum apiculatum*
Inkukutwane	*Combretum gueinzii*
Inkunzi	*Heteropyxis canescens*
Inkunzibomvu	*Capparis tomentosa*
Inotwane	*Triumfetta rhomboidea*
Insangonsango	*Plectroniella armata*
Insinde	*Themeda triandra*
Intfocwane	*Dais cotinifolia*
Intfocwane	*Peddiea africana*
Intfokolovu	*Lannea discolor*
Intsanyelo	*Cliffortia linearifolia*
Intungamusi	*Cenchrus ciliatus*
Inubujeje	*Vernonia glabra*
Inyatelo	*Vernonia oligocephala*
Inyenyane	*Trichocladus grandiflorus*
Ipunte	*Brachiaria brizantha*
Iqubujeje	*Indigofera sp.*
Ishupa	*Euphorbia ingens*
Isidfwata	*Lopholaena platyphylla*

Isidlungu	*Protea spp.*
Isifubasangala	*Ochna natalitia*
Isihomuhomu	*Lonchocarpus capassa*
Isikhonkwane	*Dracaena hookeriana*
Isincwati	*Curtisia dentata*
Isindwendweni	*Crocosmia aurea*
Isinyula	*Garcinia livingstoniana*
Isiphulamshini	*Garcinia livingstoniana*
Isitibane	*Ormocarpum trichocarpum*
Isona	*Striga sp.*
Izaza	*Erythroxylon brownianum*
Khayimela	*Acacia karoo*
Khayimela	*Acacia swazica*
Khokhokho	*Ficus sonderi*
Khokhokho	*Ficus stuhlmannii*
Libhungela	*Ehretia amoena*
Libota	*Ilex mitis*
Libundza	*Popowia caffra*
Licume	*Xanthium spinosum*
Lidlebelembila	*Greyia radlkoferi*
Lidlebelendlovu	*Pterocarpus rotundifolius*
Lifufu	*Combretum suluense*
Ligkolo	*Rapanea melanophloeos*
Lijobe	*Erythroxylon brownianum*
Lijoye	*Cassia petersiana*
Lijoye	*Eugenia natalitia*
Likholo	*Grewia caffra*
Liletsa	*Pappea capensis var. radlkoferi*
Linyenye	*Rhamnus prinoides*
Liphama	*Loranthus spp.*
Lisheke	*Amarantus thunbergii*
Lisundu	*Phoenix reclinata*
Litabane	*Scolopia mundtii*
Litabane	*Scolopia zeyheri*
Litjinda	*Gossypium herbaceum ssp. africanum*
Lubembedfu	*Gardenia neuberia*
Lubibi	*Acacia borleae*
Lugagane	*Acacia ataxacantha*
Lugoba	*Digitaria spp.*
Luhlindzamfuku	*Pteridium aquilinum*
Luqolokulu	*Rapanea melanophloeos*
Lusekwane	*Dichrostachys glomerata*
Lusololo	*Bauhinia galpinii*
Lutfwili	*Hippobromus pauciflorus*
Madolwane	*Chloris virgata*
Madolwane	*Eragrostis superba*
Magucu	*Maesa lanceolata*
Mahlebe	*Trimeria rotundifolia*
Mahumbane	*Euphorbia tirucalli*
Maluleka	*Gerrardina foliosa*
Malungala	*Tecomaria capensis*
Mangwe	*Terminalia phanerophlebia*
Mavambuka	*Berkheya setifera*
Mazabuka	*Sclerochiton harveyanus*
Mutshwane	*Lippia asperifolia*
Mzandazbuka	*Cissampelos mucronata*
Ngumnongwane	*Apodytes dimidiata*
Ngumnyamatsi	*Ekebergia capensis*
Ngumotane	*Vepris undulata*

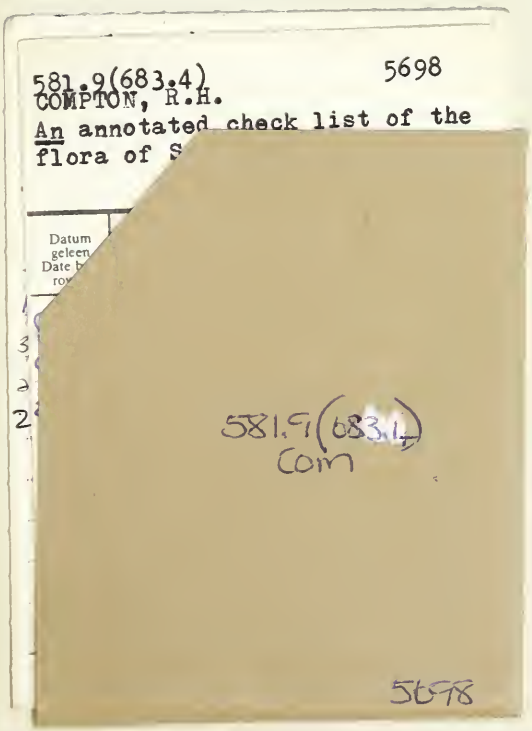
Ngungcotfo	*Boscia rehmanniana*
Qhoboqhobo	*Tarchonanthus galpinii*
Sibambempala	*Acacia retinens*
Sibutane	*Hyparrhenia dissoluta*
Sibutane	*Hyparrhenia filipendula*
Sifunti	*Vellozia spp.*
Siganganyane	*Lannea discolor*
Sihlalavane	*Combretum hereroense*
Sihlangi	*Maytenus cymosus*
Sihlangi	*Maytenus senegalensis*
Sikumbyambya	*Pachypodium saundersii*
Singa	*Acacia gerrardii*
Singa	*Acacia karoo*
Sinwati	*Rhoicissus tomentosus*
Sinwati	*Rhoicissus rhomboideus*
Siphamba	*Erythrina latissima*
Siphici	*Heeria insignis*
Siphici	*Heeria reticulata*
Siphisamakhata	*Xymalos monospora*
Siqandzamatshe	*Trimeria rotundifolia*
Siqoba	*Gardenia spatulifolia*
Siqualaba	*Faurea saligna*
Siqunga	*Cymbopogon plurinodis*
Sitshelete	*Ekebergia capensis*
Sitfokotfozo	*Sanseviera thyrsiflora*
Sitfwetfwe	*Acacia tortilis ssp. heteracantha*
Tililo	*Stapelia gigantea*
Ubabe	*Panicum maximum*
Ubukunku	*Androstachys johnsonii*
Ugadolo	*Bidens pilosa*
Ulumba	*Sterculia rogersii*
Umbalalaqane	*Trema orientalis*
Umbambangwe	*Chaetacme aristata*
Umbangandlala	*Heteromorpha trifoliata*
Umbanje	*Tagetes minuta*
Umbatancwephe	*Buddleia salviifolia*
Umbhaba	*Sterculia murex*
Umbinda	*Halleria lucida*
Umbohlobohlo	*Maesa lanceolata*
Umbondozendlovu	*Combretum viride*
Umbongambonga	*Maesa lanceolata*
Umboyi	*Curtisia dentata*
Umchafutane	*Diospyros lycioides ssp. guerkei*
Umchithamuzi	*Euclea natalensis*
Umcobe	*Dalbergia armata*
Umdfubu	*Galpinia transvaalica*
Umdonqa	*Ceratotheca triloba*
Umdzakane	*Apodytes dimidiata*
Umfomfo	*Cephalanthus natalensis*
Umgamba	*Acacia davyi*
Umganu	*Sclerocarya birrea*
Umgulutane	*Pygmaeothamnus chamaedendrum*
Umgungulutane	*Cassine aethiopica*
Umgwali	*Euclea divinorum*
Umgwane	*Rhynchelytrum repens*
Umgwenya	*Harpephyllum caffrum*
Umhanga	*Aloe marlothii*
Umhlafutfo	*Acacia xanthophloea*
Umhlahlalinye	*Acacia senegal*

Umhlahle	*Erythrophloeum guineense*
Umhlala	*Strychnos spinosa*
Umhlanga	*Phragmites mauritianus*
Umhlangoti	*Protorhus longifolius*
Umhlonhlo	*Euphorbia cooperi*
Umhlosheni	*Heteropyxis natalensis*
Umhlozana	*Burchellia bubalina*
Umhlukanye	*Hibiscus cannabinus*
Umhlume	*Adina microcephala var. galpinii*
Umhobohobo	*Anthocleista grandiflora*
Umhohlo	*Bolusanthus speciosus*
Umholuka	*Croton menyhartii*
Umholampunzi	*Homalium subsuperum*
Umhuluka	*Croton gratissimus*
Umjobo	*Solanum nigrum*
Umkhamamasi	*Rauwolfia caffra*
Umkhamkhambe	*Peltophorum africanum*
Umkhanku	*Erythrophloeum guineense*
Umkhayo	*Acacia nigrescens*
Umkhiwane	*Ficus capensis*
Umkhonono	*Terminalia sericea*
Umkhuhlu	*Trichilia emetica*
Umkhwakwa	*Strychnos spinosa*
Umkiwa	*Ficus sycomorus*
Umkolikoli	*Afzelia cuanzensis*
Umkonkoni	*Aristida congesta var. barbicollis*
Umlezane	*Ochna atropurpurea*
Umnama	*Maytenus acuminatus*
Umncosi	*Syzygium cordatum*
Umneyi	*Phyllogeiton zeyheri*
Umnganduzi	*Acacia sieberiana var. woodii*
Umngwamba	*Manilkara mochisia*
Umnongwane	*Fagara capensis*
Umnono	*Strychnos henningsii*
Umnquma	*Olea africana*
Umntulu	*Vangueria infausta*
Umnukelambiba	*Clausena anisata*
Umnumbela	*Bequaertiodendron magalismontanum*
Umnunu	*Balanites maughamii*
Umnweba	*Sideroxylon inerme*
Umnyetane	*Salix woodii*
Umoitamusi	*Diospyros lycioides ssp. sericea*
Umphafa	*Zizyphus mucronata*
Umphatsankosi	*Strychnos innocua ssp. dysophylla*
Umphisi	*Boscia rehmanniana*
Umphushane	*Mimusops zeyheri*
Umpongamponga	*Dissotis princeps*
Umqanca	*Myrsine africana*
Umsengambuti	*Cussonia umbellifera*
Umsenge	*Cussonia paniculata*
Umsenge	*Cussonia spicata*
Umsetshane	*Dichrostachys cinerea*
Umshafunti	*Afzelia cuanzensis*
Umsinandlovu	*Mundulea sericea*
Umsingitane	*Sporobolus pyramidalis*
Umsinsi	*Erythrina lysistemon*
Umsiphane	*Grewia flavescens*
Umsiphane	*Grewia hexamita*
Umsongo	*Acalypha angustata*
Umsontsi	*Podocarpus spp.*
Umtelemba	*Annona senegalensis*
Umtenti	*Imperata cylindrica*
Umtfongwane	*Oncoba spinosa*

Umthati	*Ptaeroxylon obliquum*
Umtshike	*Eragrostis heteromera*
Umutwa	*Schotia brachypetala*
Umuvusankunzi	*Carissa bispinosa*
Umuwane	*Dombeya rotundifolia*
Umvalandlebe	*Parinari capense*
Umvangatana	*Albizia versicolor*
Umvangati	*Pterocarpus angolensis*
Umvongotsi	*Kigelia pinnata*
Umvovovu	*Schotia brachypetala*
Umvusamvu	*Pittosporum viridiflorum*
Umxele	*Ehretia rigida*
Umxobe	*Popowia caffra*
Umzilazembe	*Dichrostachys cinerea*
Untfombotsi	*Spirostachys africana*
Usasatye	*Cassine eucleaeformis*
Usawoti	*Pavetta schumanniana*
Utindi	*Coleochloa setifera*

PART V

ALPHABETICAL INDEX TO FAMILIES AND GENERA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